

FY2006

FORT SILL
Oklahoma
INSTALLATION ACTION PLAN

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Installation Cleanup Program for an installation. The plan will identify environmental cleanup requirements at each site or area of concern, and propose a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, U.S. Army Environmental Center (USAEC), Fort Sill, Installation Management Agency Southwest Region, executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan at the IAP Workshop held April 19, 2005:

EEI for Army Environmental Center

Fort Sill

Installation Management Agency Southwest Region

Oklahoma Department of Environmental Quality

US Army Corps of Engineers-Tulsa District

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Acronyms & Abbreviations

AAFES	Army and Air Force Exchange Services
AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
AST	Above Ground Storage Tank
BRAC	Base Realignment and Closure
CCES	Crystal Creek Environmental Solution, Inc.
CERCLA	Comprehensive Environmental Response Compensation and Liability Act (1980)
CESWT	U.S. Army Corps of Engineer, Tulsa District
CFR	Code of Federal Regulations
CTC	Cost-to-Complete
CTT	Closed, Transferred, and Transferring
cy	cubic yards
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DMM	Discarded Military Munitions
DNT	dinitrotoluene
DOL	Directorate of Logistics
DPW	Directorate of Public Works
DRMO	Defense Reutilization Marketing Organization
EEI	Engineering and Environment, Inc.
EM	Electromagnetic
EOD	Explosive Ordnance Division
EPA	(United States) Environmental Protection Agency
EQD	Environmental Quality Division
ER,A	Environmental Restoration, Army
FARTC	Field Artillery Replacement Training Center
FOSL	Finding of Suitability to Lease
FS	Feasibility Study
Ft	Fort
ft	foot
FTSL	Fort Sill
FY	Fiscal Year
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	\$1,000
LETRA	Lake Elmer Thomas Recreation Area
LTM	Long-Term Management
LUC	Land Use Controls
MC	Munitions Constituents
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
mm	millimeter
MMRP	Military Munitions Response Program

Acronyms & Abbreviations

MSSL	Medium-Specific Screening Levels
MSWLF	Municipal Solid Waste Landfill
NE	Not Evaluated
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OCC	Oklahoma Corporation Commission
OD	Ordnance Disposal
ODEQ	Oklahoma Department of Environmental Quality
OHM	OHM Remediation Services, Corp.
OSDH	Oklahoma State Department of Health
PA	Preliminary Assessment
PBA	Powder Burn Area
PCB	polychlorinated biphenyles
POL	Petroleum, Oil & Lubricants
POM	Program Objective Memorandum (budget)
ppm	part per million
PRC	PRC Environmental Management Inc.
PY	Prior Year
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy in Place
RRSE	Relative Risk Site Evaluation
S&A	Supervision & Administration
SA	Site Assessment
SI	Site Inspection
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance Participation Program
TPH	Total Petroleum Hydrocarbon
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency
USAFACFS	United States Army Field Artillery Center and Fort Sill
UST	Underground Storage Tank
UXO	Unexploded Ordnance

Acronyms & Abbreviations

VCP	Voluntary Cleanup Program
VSI	Visual Site Inspection
WWTP	Wastewater Treatment Plant
XRF	X-ray Fluorescence

INSTALLATION LOCALE: USAFACFS is located in Comanche County, southwestern Oklahoma. The Installation consists of 93,828.73 acres that stretches approximately 26 miles in an east-west direction with an average width of six miles. The Fort Sill cantonment area, on the southeastern part of the post, is adjacent to the city of Lawton. Mostly rural areas and the Wichita Mountains National Wildlife Refuge surround the remaining portion of the Installation.

INSTALLATION MISSION: The mission of the USAFACFS is to train United States Field Artillerymen, both officers and enlisted personnel. The Artillery Training Center uses the concept of one-station-unit training, where basic and advanced individual training is combined and taught through a diverse program ranging from formal classroom training through direct field applications. Annually, Fort Sill trains more than 40,000 students, including 8,000 Field Artillery Marines, and soldiers from 50 allied countries. Approximately 22,000 soldiers and 6,500 civilian employees are employed at USAFACFS.

COMMAND ORGANIZATION:

Fort Sill

Southwest Regional Office, Installation Management Agency

REGULATOR PARTICIPATION:

FEDERAL: U.S. Environmental Protection Agency, Region VI

STATE REGULATORY AGENCY: Oklahoma Department of Environmental Quality

NPL STATUS:

No NPL sites have been identified at Fort Sill.

RAB/TRC/TAPP STATUS:

Fort Sill has made numerous Restoration Advisory Board (RAB) evaluations over the last 4 years with the last evaluation in July 2004 prior to the IAP Workshop. These evaluations show lack of sufficient and sustained interest by the community and local government entities in forming a RAB.

PROGRAM SUMMARIES:

IRP

Contaminants of Concern: Petroleum/Oil/Lubricants, Heavy Metals
Media of Concern: Soil, Groundwater, Surface Water
Date for RIP/RC: 2005
Funding to Date: (FY89-FY05) \$22,157,342
CTC: \$1,799,000

MMRP

Contaminants of Concern: UXO
Media of Concern: Soil
Estimated date for RIP/RC: 2014
Funding to Date: (FY03-FY05) \$534,000
CTC: \$45,005,000

BRAC

There are no BRAC sites at Fort Sill

Cleanup Program Summary

HISTORIC ACTIVITY: Fort Sill had its beginnings as an isolated cavalry post in Indian Territory founded on January 8, 1869, by General Philip H. Sheridan. On October 7, 1871, 23,040 acres were acquired by Executive Order to establish Fort Sill as a military reservation. During the 1870s, the “Buffalo Soldiers” of the 10th Cavalry constructed the permanent buildings, which today comprise the Old Fort Sill National Historic Landmark District. On February 26, 1897, nearly 27,000 acres were added by Executive Order. In 1902, the 29th Battery of Field Artillery was assigned to Fort Sill. This event marked the beginning of the transformation of Fort Sill from a cavalry post to a field artillery center. In September 1907, some 1,200 additional acres were added to the Installation by Executive Order. In June of 1911, the School of Fire for Field Artillery was established at Fort Sill, and in 1915, the 1st Aero Squadron, the first U.S. military aircraft unit, was assigned to the post. This led to the establishment of the Henry Post Airfield in 1917. In 1940, some 20,200 acres were purchased from private landowners, and between 1941 and 1943, slightly over 2,500 acres were transferred from the Department of the Interior to Fort Sill. The Artillery Center was established at Fort Sill on November 1, 1946. Acquisition of the final 20,240 acres for the Installation was completed in 1957 by purchases from private landowners, bringing Fort Sill to 94,221 acres. Roughly 392 acres was transferred as a National Cemetery bringing the current acreage to approximately 93,828 acres. Fort Sill is currently the home of the United States Army Field Artillery Center and one of the Army’s premier power projection platforms.

Fort Sill applied for a Part B permit under Section 3004(u) of the RCRA in 1987. In order to comply with the requirements of the permitting process, the Installation had to address corrective action for releases of hazardous waste/materials from identified solid waste management units (SWMUs). Fort Sill requested the U.S. Army Environmental Hygiene Agency (USAEHA) conduct an evaluation of Fort Sill’s SWMUs in January 1987. In 1990, PRC Environmental Management, Inc., under contract with the Environmental Protection Agency (EPA), conducted a RCRA Facility Assessment (RFA) at Fort Sill and prepared a RFA Report dated 13 April 1990. In 1991, Fort Sill withdrew its Part B permit application and began operating as a less than 90-day generator.

The Environmental Protection Agency proposed a RCRA 3008(h) consent order against Fort Sill in 1993. The intent of this order was to insure that the remediation of Fort Sill’s already identified SWMUs were not ignored as a result of the withdrawal of Fort Sill’s Part B Application. During the negotiation of this order, Fort Sill was able to demonstrate to EPA region VI that the 120 SWMUs identified during the Fort Sill RFA were being addressed in a timely and appropriate manner. The conclusion of EPA Region VI and Fort Sill was that the system was working efficiently without the need for a costly and time-consuming RCRA 3008(h) consent order. Fort Sill operates under the Voluntary Cleanup Program managed within the guidelines of the IRP and Defense State Memorandum of Agreement (DSMOA) process as opposed to a formal regulatory driven approach.

Fort Sill is in the process of developing an Installation-wide Land Use Control (LUC)s implementation plan in coordination with master planning, environmental and Installation command staff.

Cleanup Program Summary

CURRENT ACTIVITY: The mission of the USAFACFS is to train United States Field Artillerymen, both officers and enlisted personnel. The Artillery Training Center uses the concept of one-station-unit training, where basic and advanced individual training is combined and taught through a diverse program ranging from formal classroom training through direct field applications. Annually, Fort Sill trains more than 40,000 students, including 8,000 Field Artillery Marines, and soldiers from 50 allied countries. Approximately 22,000 soldiers and 6,500 civilian employees are employed at USAFACFS.

PROGRAM PROGRESS SUMMARIES:

IRP: RIP/RC in 2005
LTM to maintain LUCs

MMRP: PA Complete
SI Underway

BRAC: There are no BRAC Sites at Fort Sill.

FORT SILL

INSTALLATION RESTORATION PROGRAM

STATUS: No NPL sites, no RCRA part B permit.

AEDB-R SITES/SITES RC/SITES RC WITH LTM: 69/69/7

AEDB-R SITE TYPES:

1 Fire/Crash Training Area	8 Burn Areas	1 Contaminated Sediments
2 Contaminated Fill	4 Surface Disposal Areas	2 Disposal Pit/Drywells
1 Oil Water Separator	18 Landfills	4 Storage Areas
3 Incinerators	1 Waste Treatment Plant	2 Underground Storage Tanks
2 Surface Impoundment/Lagoons	9 Spill Site Areas	
6 Explosive Ordnance Disposal Areas		
5 Unexploded Munitions/Ordnance		

CONTAMINANTS OF CONCERN: Petroleum/Oil/Lubricants and Heavy Metals

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

COMPLETED REM/IRA/RA:

UST Removals (1992-1993) (Non-ER,A Funding)
Oil/Water Separator Removals (1995-1996) (Non-ER,A Funded)
RA(C) - Old Medical Waste Incinerator
RA(C) - Powder Burn Area 2 (Bald Ridge Road)
RA(C) - Powder Burn Area 4 (Chrystie Hill)
RA(C) - Asphalt Spill Site
RA(C) - Building 4700 – Hospital Laboratory
RA(C) - Bulk POL Storage Area, Building 2330
RA(C) - Dumping Site at Ketch Lake Bunker
IRA - Battery Acid Neutralization Pit, Battery Acid Neutralization Tank, Battery Acid Neutralization System, Fire Training Area, Blue Beaver PBA, Tower Two Road PBA, Bald Ridge Road PBA, Chrystie Hill PBA

TOTAL ERA FUNDING:

PRIOR YEAR (FY89-FY04)	\$22,018,342
CURRENT (FY05):	\$139,000
FUTURE:	\$1,799,000

DURATION OF IRP:

Year of IRP Inception:	1989
Year of RA Completion:	2005
Year of IRP Completion:	Indefinite

IRP Contamination Assessment

In January 1987, the USAEHA prepared a Hazardous Waste Consultation - Evaluation of Solid Waste Management Units. This report was conducted to assist with the RCRA Part B permit application for the Installation's hazardous waste container storage facility by identifying and evaluating all SWMUs on the Installation as required by 40 CFR 264.101.

In July 1990, USAEHA conducted an Environmental Program Review. The purpose of the review was to evaluate the functional and technical aspects of the air pollution, environmental noise, hazardous waste, pest management, wastewater and potable/recreational water quality, and non-ionizing radiation programs. This was to evaluate the potential for groundwater contamination; to assess compliance with applicable Federal, State, local and Department of the Army environmental regulations; and to assist with the identification of existing and potential environmental hazards.

April 1990, a RCRA Facility Assessment Report was prepared by PRC Environmental Management, Inc. and ICF Incorporated for the U.S. Environmental Protection Agency (EPA), Region VI. The report was based on information reviewed from files at EPA Region VI and a visual site inspection conducted by ICF on January 8-12 1990. Based on the review of the available information and observations made during the VSI, 120 SWMUs were identified at Fort Sill.

In April 1991, Radian Corporation conducted sampling under a RCRA Facilities Assessment for the U.S. Army Corps of Engineers, Kansas City District. The assessment was prepared for 16 SWMUs at Fort Sill, which were selected from a group of 43. The 43 sites were originally identified in the Evaluation of Solid Wastes Management Units issued by the USAEHA in 1987. The 16 sites identified for the RFA included active and inactive landfills, open ordnance detonation areas, an ordnance disposal pit, a waste battery acid disposal pit, and a fire training area. The objective of the facility assessment was to provide a preliminary determination of the presence or absence of chemical contamination at these SWMUs.

Sixty Nine of Fort Sill's SWMUs have been included in the IRP program and the Army Environmental Restoration database. These 69 sites consist of landfills, powder burn areas, EOD sites, spill locations, contaminated UST sites, and other miscellaneous sites.

Nine of Fort Sill's historic landfills (AEDB-R #s FTSL-009 thru - 016 & -020) were determined by EPA Region VI, in their proposed RCRA 3008(h) consent order, to pose a threat to the shallow alluvial groundwater along Cache creek. The groundwater monitoring systems at these sites were evaluated, upgraded and sampled to insure that these landfills were not contaminating Cache creek. The sampling effort was intended to collect groundwater samples for five years to establish a basis for the closing or continued monitoring/remediation of these sites. This groundwater-monitoring program was completed in June of 2000.

Four of Fort Sill's historic powder burn areas (AEDB-R #s FTSL-027, -029, -030, -032) were determined to be contaminated with excessively high (40,000 ppm) levels of lead in surface soils. These sites posed significant offsite migration hazards (sediment migration) due to the colloidal nature of the soils in the area and the affinity of lead for such soil particulates. The threat of contaminant migration has been mitigated at these four (4) sites, by the completion of remedial actions. Remedial actions at FTSL-030 or 032 were funded with other funds. The State of Oklahoma Department of Environmental Quality closed all eight historic powder burn areas on 12 July 2001.

CLEANUP EXIT STRATEGY:

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan.

PREVIOUS STUDIES:

1986

- Geohydrologic Study, No.38-26-0908-87, USAEHA, March & April 1986.

1987

- Hazardous Waste Consultation - Evaluation of Solid Waste Management Units, No.37-26-1650-87, USAEHA, January-87.

1990

- RCRA Facility Assessment Report, U.S. Environmental Protection Agency (EPA), Region VI, PRC Environmental Management, Inc. and ICF Incorporated, April-90.
- Environmental Program Review, USAEHA, July-90.

1991

- Conducted Sampling Under a RCRA Facilities Assessment, U.S. Army Corps of Engineers, Kansas City District, Radian Corporation, April-91.

1995

- Draft Closure Report DOL Area Site SWMU, Fort Sill, Oklahoma, IT Corporation for the CESWT, July-95.

1996

- Powder Burn Areas Site Investigation, U.S. Army Corps of Engineers, Tulsa District, Crystal Creek Environmental Solutions, Inc., January-96.
- Powder Burn Areas Site Investigation (PBAs 1, 2, 3, 4, 6, 8), Fort Sill, Oklahoma, Crystal Creek Environmental Solutions, Inc., January-96.
- Site Investigation of 34 SWMUs, Fort Sill, Oklahoma, Parsons Engineering Science, June-96.
- Site Closure Report Remedial Action - East Range PBA, Two Volume Set (SWMU 024), OHM Remediation Services, Corp., July-96.
- Site Closure Report Remedial Action – Tower Two PBA, Two Volume Set (SWMU 027), OHM Remediation Services, Corp., July-96.
- Closure Report POL Storage Area AIA Building 2330, Fort Sill Oklahoma, U.S. Army Corps of Engineers Tulsa District, November-96.
- Site Closure Report Remedial Action – Blue Beaver Creek PBA, Two Volume Set (SWMU 029), OHM Remediation Services, Corp., December-96.

Previous Studies continued on next page

IRP Contamination Assessment

1997

- Technical Data Report for the Investigation and Removal of Contaminated Drain Traps at Building 4700 (Old Reynolds Army Community Hospital), U.S. Army Corps of Engineers, Tulsa District, LB&M Associates Inc., July-97.
- Investigation Report Wastewater Treatment Plant, U.S. Army Corps of Engineers, Tulsa District, Woodward-Clyde Federal Services, August-97.
- Investigation Report Wastewater Treatment Plant, Fort Sill, Oklahoma, One Volume (SWMUs 065-079), Woodward-Clyde Federal Services, August-97.

1998

- Technical Data Report Battery Acid Disposal Site, Fort Sill, Advancia Corporation, February-98.
- Remediation of Chrystie Hill Powder Burn Area Number 4, U.S. Army Corps of Engineers, Tulsa District, OHM Remediation Services, Corp., July-98.
- Technical Evaluation to Establish Soil Levels for Lead, 2,4-Dinitrotoluene, and 2,6-Dinitrotoluene at the Chrystie Hill Powder Burn Area, OHM Remediation Services Corporation, Caldwell Environmental Associates, Inc., September-98.
- Work Plan for SWMU 85, U.S. Army Corps of Engineers, Tulsa District, IT Corporation, October-98.

1999

- Site Investigation of Former Gunnery Hill Landfill (SWMU 4), Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa, July-99.
- Former Sitting Bear Creek Landfill (SWMU 5), Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa, July-99.
- Former Sitting Bear Creek Landfill (SWMU 5), Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa, July-99.
- Site Investigation Former Camp Eagle Landfill (SWMU 17), Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa, July-99.
- Limited Human Health Risk Evaluation, Former Sitting Bear Creek Landfill (SWMU 5), U.S. Army Corps of Engineers, Tulsa, July-99.
- Final Site Investigation Heyles Hole, Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa, September-99.
- Closure Report SWMU 85, Fort Sill, Oklahoma, Two Volume Set, IT Corporation, November-99.

2000

- Closure Report Powder Burn Areas (SWMUs 24, 27, 29), U.S. Army Corps of Engineers, Tulsa, September-00.
- Groundwater Monitoring Program Report SWMU 6, 7, 8, 9, 10, 11, 12 and 83, Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa District Radian International, December-00.

Previous Studies continued on next page

2001

- Final Closure Report Paint Thinner Disposal Area Buildings 2209 and 214 (SWMU 80), Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa, April-01.
- Closure Report Acid Neutralization System, Fort Sill, Oklahoma. U.S. Army Corps of Engineers, Tulsa District. IT Corporation, June-01.
- Closure Report Fire Training Area, Fort Sill, Oklahoma. U.S. Army Corps of Engineers, Tulsa District, IT Corporation, June-01.
- Fort Sill Groundwater Analyses Statistical Summary, Selected Analytes SWMUs 6, 7,8, 9, 10, 11, 12 1996-2000, U.S. Army Corps of Engineers, Mobile, August-01.
- Final Report Site Investigation Former Waste Battery Acid Neutralization Site (SWMUs 97, 98, 112), Fort Sill, Oklahoma, U.S. Army Corps of Engineers, Tulsa, September-01.
- Final Technical Memo Completion Report Old Medical Waste Incinerator Site Removal Action, U.S. Army Corps of Engineers, Tulsa District, IT Corporation, November-01.

2002

- Final Closure Report Former Gunnery Hill Landfill (SWMU 4), U.S. Army Field Artillery Center & Fort Sill, U.S. Army Corps of Engineers, Tulsa, March-02.
- Completion Report SWMU#5, Former Sitting Bear Creek Landfill, Weston Solutions, Inc., September-02.

FORT SILL

INSTALLATION RESTORATION
PROGRAM

ER,A RESPONSE COMPLETE
(WITH LTM)
SITE DESCRIPTIONS

LANDFILL 4 (GUNNERY HILL)

SITE DESCRIPTION

Landfill 4 is located in the Gunnery Hill area northwest of the intersection of Fort Sill Blvd and Sheridan Road. It was a hillside disposal site where rubbish was open-burned. The site is approximately 2.4 acres in size. Material was reportedly dumped and/or burned at this location during the World War II era (ca. 1940s). Operation ceased in the late 1940s. The exact composition of the wastes managed is unknown. The unit is well vegetated and shows no visible signs of leachate.

PRC Environmental conducted the RFA (PA/SI) in April 1990. The RFA recommended further site investigation to determine the composition of the wastes disposed of at this unit. Fort Sill contracted with the U.S. Army Corps of Engineers, Tulsa District (CESWT), to conduct further site investigation to identify contaminants of concern. The Phase I RFI began in July 1998, and the Phase I report was completed July 1999. The Phase I investigation included an electromagnetic survey of the area, revealing a total of six anomalous areas, sampling of the surface soil, subsurface soil, and sediment. Lead was detected in the soil sample at concentrations above the industrial MSSL. Additional sampling was needed to determine the full extent of contamination at the site.

Phase II of the RFI comprised of additional soil and groundwater sampling was conducted in March 2000, with the final closure report prepared by CESWT. This investigation shows arsenic, barium, chromium and lead as possible contaminants of concern. Further investigation was conducted at the site. Final Site Investigation Former Gunnery Hill Landfill Report was submitted to ODEQ on April 09, 2002. ODEQ issued NFA letter October 27, 2004.

CLEANUP STRATEGY

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling. It is anticipated that there will be limited activity at this location, with the five-year reviews and LUCs being covered under another site.

STATUS

RRSE: Low

CONTAMINANTS:

Heavy Metals

MEDIA OF CONCERN:

Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199804	200407
LTM	200410	201509

RC: 200407

LANDFILL 5 (SITTING BEAR CREEK) (PAGE 1 OF 2)

SITE DESCRIPTION

Landfill 5 is located in the Sitting Bear Creek area on the East side of Geronimo Road, roughly 300 feet south of the Geronimo Road Children's School and 600 feet west of Sitting Bear Creek. The landfill was a trench type landfill, reported in 1975 to contain rubbish generated from the 1880s to 1945. The area reportedly was subsequently filled and covered with soil. At this time, there is no waste exposed to the surface and no visible leachate is being discharged. The size of the landfill is estimated to be four acres. The area is currently used as a playground for the Geronimo Road Children's School.

The RFA (PA/SI) was conducted in April 1990 by PRC. The RFA recommended no further action at the site; however, EPA Region VI requested additional investigation. Fort Sill contracted with CESWT, to conduct Phase I of a RFI. The Phase I consisted of an electromagnetic survey to identify the exact location of the landfill.

In Phase II of the RI, Fort Sill contracted with CESWT to conduct surface soil sampling. Sampling was performed by the CESWT in the summer of 1998 and 1999. Through contract with CESWT, Roy F. Weston, Inc. performed a limited human health risk evaluation of the surface soils for this site. Based on the risk evaluation, it was determined that the risk posed to children using the playground was within acceptable limits. In July 1999, the health risk evaluation was provided to the Lawton Public School System. Based on the results of the health risk evaluation, the decision to continue to use the playground was made by the Lawton Public School System. The Lawton Public School System owns the Geronimo Road School, and the land the school sits upon is leased from Fort Sill. The current school lease is expired, with the Finding of Suitability to Lease (FOSL) being revised.

During the Phase III of the RI (June 2001) site investigation, extensive subsurface soils and groundwater investigation was conducted to support a full baseline human health and ecological risk assessment for all potential exposure pathways at the site. The results of the baseline risk assessment determined that there are limited-to-no human health risks or environmental risks associated with the former landfill. On January 3, 2003, the final Closure Report, including the human health and ecological risk assessment, was submitted to ODEQ.

The trenches were brought up to grade in August 2004 with an additional minimum of 6" soil then re-vegetated with sod. ODEQ issued a NFA letter on October 27, 2004.

STATUS

RRSE: Low

CONTAMINANTS:

Heavy Metals, Aromatic Hydrocarbons

MEDIA OF CONCERN:

Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004
RI	199804	200503
LTM	200503	203409

RC: 200503

LANDFILL 5 (SITTING BEAR CREEK) (PAGE 2 OF 2)**CLEANUP STRATEGY**

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling.

FTSL-010

LANDFILL 6 (MISSION RIDGE/WHITE WOLF BRIDGE)

SITE DESCRIPTION

Mission Ridge/White Wolf Bridge is the earliest documented sanitary landfill used at Fort Sill. It was a trench-and-fill disposal site for sanitary wastes and rubbish during the 1940s and 1950s. The landfill is located between Hummel Knoll and the Medicine Bluff Recreational Area, between Apache Gate Road and Punch Bowl Roads. Chatto Road subdivides the area east to west. The overall area is approximately 111 acres in size. Disposal apparently took place at five separate trench-and-fill areas that range from 1 to 6 acres in size and are apparent, by parallel or nearly parallel, ridge-like hummocks along the ground surface. The landfill areas are well vegetated, with minimal surface erosion and no visible signs of environmental impact.

A geohydrologic study was conducted by USAEHA in March and April 1986, at which time four groundwater monitoring wells were installed.

In April 1990, PRC Environmental completed the RFA recommending the collection of additional soil and groundwater samples. April of 1991, Radian Corp. conducted a separate RFI, which included soil and groundwater sampling.

Groundwater was monitored for five years to determine possible impact on the groundwater quality. The five-year groundwater monitoring program was completed in FY2000. On 22 February 2001, the site Groundwater Monitoring Program Report was submitted to ODEQ. To support the findings of the Groundwater Monitoring Report, the U.S. Corps of Engineers prepared a separate Groundwater Analyses Statistical Summary report. In August 2001, the Mobile District completed the report and submitted it to the ODEQ in September 2001. On August 20, 2002, ODEQ issued a NFA letter. In December 2002, the groundwater monitoring wells were removed.

CLEANUP STRATEGY

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling.

STATUS

RRSE: Low

CONTAMINANTS: Heavy Metals

MEDIA OF CONCERN:

Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199005	200209
LTM	200209	203209

RC: 200209

LANDFILL 7 (HUMMEL KNOLL)

SITE DESCRIPTION

The Hummel Knoll site is located between Hummel Knoll and Medicine Bluff Recreational Area, and between Apache Gate Road and Punch Bowl Road (northeast corner). The landfill operated as a trench-and-fill type landfill from about 1950 to 1955. Fort Sill used this landfill primarily for the disposal of sanitary wastes and rubbish. The site is approximately 50 acres in size.

In March and April 1986, a geohydrologic study was conducted by USAEHA, at which time four groundwater monitoring wells were installed. In April 1990, PRC Environmental completed the RFA recommending the collection of additional soil and groundwater samples. In April 1991, Radian Corp. conducted a separate RFA, which included soil and groundwater sampling.

In early 1995, the groundwater monitoring system at this site was evaluated and upgraded by Parsons. There were a total of seven monitoring wells at the site. The RI/FS began in 1995. Groundwater monitoring was initiated due to EPA Region VI concerns regarding this site.

Groundwater was monitored for five years to determine impact on the groundwater quality. In FY2000, the five-year groundwater monitoring program was completed at this site. On 22 February 2001, the site Groundwater Monitoring Program Report was submitted to ODEQ. To support the findings of the Groundwater Monitoring Report, the U.S. Corps of Engineers prepared a separate Groundwater Analyses Statistical Summary report which Mobile District completed August 2001 and submitted to the ODEQ in September 2001. On 20 August 2002, ODEQ issued a NFA letter. In December 2002, the groundwater monitoring wells were removed.

CLEANUP STRATEGY

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling.

STATUS

RRSE: Low

CONTAMINANTS: Heavy Metals, Aromatic Hydrocarbons

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199506	200209
LTM	200209	203209

RC: 200209

FTSL-012

LANDFILL 8 (NORTH FIELD)

SITE DESCRIPTION

The North Field Landfill is located west of North Field Road and north of Elgin Road, south of the St. Louis-San Francisco Railroad and approximately 200 feet east of East Cache Creek. The landfill area is elongated along a north-south axis, and has a length of approximately 4,000 feet and a width of about 600 feet (55 acres). The site operated as a trench-and-fill type sanitary landfill from pre-1965 to 1970, and was primarily used for disposal of sanitary wastes and rubbish.

A geohydrologic study was conducted by USAEHA in March and April 1986, at which time four groundwater monitoring wells were installed. In April 1990, PRC Environmental completed a RFA and recommended the collection of additional soil and groundwater samples. In April 1991, Radian Corp. conducted a separate RFA which included soil and groundwater sampling.

In early 1995, the groundwater monitoring system at this site was evaluated and upgraded by Parsons. There were a total of eight monitoring wells at the site. The RI/FS began in 1995. Groundwater monitoring was initiated at this site due to EPA Region VI concerns regarding this site.

Groundwater was monitored for five years to determine impact on the groundwater quality. In FY2000, the five-year groundwater monitoring program was completed at this site. On 22 February 2001, the site Groundwater Monitoring Program Report was submitted to ODEQ. To support the findings of the Groundwater Monitoring Report, the U.S. Corps of Engineers prepared a separate Groundwater Analyses Statistical Summary report which the Mobile District completed in August 2001 and submitted to the ODEQ in September 2001. On 20 August 2002, ODEQ issued a NFA letter. In December 2002, the groundwater monitoring wells were removed.

CLEANUP STRATEGY

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling.

STATUS

RRSE: Low

CONTAMINANTS: Heavy Metals, Aromatic Hydrocarbons

MEDIA OF CONCERN:
Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199506	200202
LTM	200209	203209

RC: 200209

LANDFILL 9 (PEACH TREE CROSSING)

SITE DESCRIPTION

Peach Tree Crossing Landfill is located immediately west of North Field Road, about 600 ft south of Elgin Road. The edge of the landfill is about 200 ft from the western edge of East Cache Creek. The site is a three-acre, trench-type sanitary landfill used primarily for the disposal of sanitary wastes and rubbish from 1970 to 1971.

In March and April 1986, a geohydrologic study was conducted by USAEHA, at which time four groundwater monitoring wells were installed. Collection of soil and groundwater samples was recommended by the 1990 RFA conducted by PRC Environmental.

Soil and groundwater samples were collected under the Radian RFA (April 1991). No soil contamination was found in the soil borings collected during that investigation. Groundwater analysis of samples collected showed some potential contamination. Four compounds: chlorobenzene, arsenic, 4,4'-DDD, and chlordane, were each detected in samples, but all were at extremely low concentrations and were verified to not be an issue.

Groundwater monitoring was initiated at this site due to EPA Region VI concerns regarding the proximity of this site to the shallow alluvial aquifers. The groundwater monitoring system at this site was evaluated and upgraded to ensure adequate monitoring. The upgraded monitoring well network consisted of seven wells.

Groundwater was monitored for five years to determine the possible impact on the groundwater quality. In FY2000, the five-year groundwater monitoring program was completed at this site. On 22 February 2001, the site Groundwater Monitoring Program Report was submitted to ODEQ for regulatory review. To support the findings of the Groundwater Monitoring Report, the U.S. Corps of Engineers prepared a separate Groundwater Analyses Statistical Summary report which the Mobile District completed in August 2001 and submitted to the ODEQ in September 2001. On 20 August 2002, ODEQ issued a NFA letter. In December 2002, the groundwater monitoring wells were removed.

CLEANUP STRATEGY

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling.

STATUS

RRSE: Low

CONTAMINANTS: Heavy Metals, Aromatic Hydrocarbons

MEDIA OF CONCERN:

Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199506	200209
LTM	200209	203209

RC: 200209

FTSL-014

LANDFILL 10

SITE DESCRIPTION

Landfill 10 is a trench type landfill located between Dodge Hill Road and Beef Creek Road and north of Beef Creek. The site covers approximately 56 acres. It was in operation from 1971 to 1985, and used primarily for the disposal of sanitary wastes, although paint sludge, asbestos, cyanide waste, wash rack wastes, spent lithium batteries, and pesticides were also known to have been disposed there. Approximately 3-feet of compacted earth was applied to the cells as a final cover. The site is well vegetated and currently used as a training area.

In March and April 1986, a geohydrologic study was conducted by USAEHA, at which time two groundwater monitoring wells were installed. PRC Environmental completed the RFA in April 1990, recommending the collection of additional soil and groundwater samples. The April 1991 RFA conducted by Radian Corp. included soil and groundwater sampling.

The groundwater monitoring system at this site was evaluated and upgraded by Parsons in early 1995. There were seven groundwater monitoring wells at this site. The RI/FS began in 1995. Groundwater monitoring was initiated due to EPA Region VI concerns regarding this site.

Groundwater was monitored over a five-year period to determine the impact on the groundwater quality. The five-year groundwater monitoring program was completed at this site in FY2000. The site Groundwater Monitoring Program Report was submitted to ODEQ, 22 February 2001. To support the findings of the Groundwater Monitoring Report, the U.S. Corps of Engineers prepared a separate Groundwater Analyses Statistical Summary report which the Mobile District completed in August 2001 and submitted to the ODEQ in September 2001. On 20 August 2002, ODEQ issued a NFA letter and the groundwater monitoring wells were removed in December 2002.

CLEANUP STRATEGY

LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling. Funding in FY08 is for document close out.

STATUS

RRSE: Low

CONTAMINANTS: Pesticides,
Heavy Metals, Hydrocarbons

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199506	200209
LTM	200209	203209

RC: 200209

EOD LANDFILL (QUANAH RANGE)**SITE DESCRIPTION**

The Quanah Range EOD Landfill is in the center part of the Quanah Range Impact Area. This site is an eight to ten feet deep trench extending for approximately 200 feet along an unnamed north/south road about half a mile north of McKenzie Hill Road. The trench landfill was used to bury exploded bombs and munitions up to the 1970s. A site reconnaissance conducted in October 1989, verified the presence of unburied bomb units in and near a northeast to southwest trending trench. Contaminants from these units pose a potential pollution threat to the soil zone as well as to groundwater and nearby surface water. Collection of soil samples was recommended in the April 1990 RFA conducted by PRC.

Soil and groundwater samples were collected under the April 1991 RFA conducted by Radian International. Some soil contamination appears to exist. Cyclotetramethylene tetranitramine was detected at a significant concentration in one surface soil sample collected from the trench containing old bombs and munitions. Lead and 4,4'-DDE were detected at very low levels in borehole samples.

It appears that explosive compounds are migrating from the trenches and surface soils into the groundwater. However, only one well contained detectable concentrations of any explosive compound in the groundwater. The downgradient well and the surface water sample downgradient from the site did not contain any of these contaminants in detectable concentrations.

ODEQ issued an NFA letter on October 14, 2003. The three groundwater monitoring wells were removed in September 2003.

CLEANUP STRATEGY

FY06 funding is for erosion control and landfill maintenance. LTM phase will include annual assessment with CERCLA five-year reviews and LUCs in accordance with the Installation-wide LUC Implementation Plan. The LUCs will be on-site controls with no building or drilling.

This site lies within the active range of the Fort Sill Falcon Range Impact Area. Therefore no further remedial investigation and/or remedial action will be considered until such time the active range becomes inactive and/or closed.

STATUS

RRSE: Low

CONTAMINANTS: Explosives, Heavy Metals

MEDIA OF CONCERN:
Soil, Groundwater, Surface Water

PHASES	Start	End
PA	198909	199102
SI	198909	200009
RI	200009	200403
LTM	200406	203209

RC: 200403

FORT SILL

INSTALLATION RESTORATION
PROGRAM

ER,A RESPONSE COMPLETE
SITE DESCRIPTIONS

ER,A RESPONSE COMPLETE SITES

AEDB-R #	AEDB-R Title	RC Date
FTSL-001	LANDFILL 1A	199004
FTSL-002	LANDFILL 1B	199004
FTSL-003	LANDFILL 1C	199004
FTSL-004	LANDFILL 1D	199004
FTSL-005	LANDFILL 1E	199004
FTSL-006	LANDFILL 2 (CAMP DONIPHAN)	199004
FTSL-007	LANDFILL 3 (HEYLES HOLE)	199911
FTSL-015	LANDFILL 11	200209
FTSL-016	LANDFILL 12	200209
FTSL-017	LEAF DISPOSAL AREA	200009
FTSL-018	WOOD DISPOSAL AREA	200009
FTSL-019	POSSIBLE CLASSIFIED MATERIAL DISPOSAL	199004
FTSL-020	LANDFILL 16 (A & B)	199004
FTSL-021	LANDFILL 17 (CAMP EAGLE)	200107
FTSL-022	CRATER CREEK CANYON DEMO AREA	200309
FTSL-023	BATEMAN WOODS DEMO AREA	200409
FTSL-024	SOUTH ARBUCKLE DEMO AREA	200309
FTSL-025	CHATTO FLATS DEMO AREA	200409
FTSL-026	POWDER BURN AREA 1 (ADAMS HILL)	200107
FTSL-027	POWDER BURN AREA 2 (BALD RIDGE ROAD)	200107
FTSL-028	POWDER BURN AREA 3 (APACHE GATE)	200107
FTSL-029	POWDER BURN AREA 4 (CHRYSTIE HILL)	200107
FTSL-030	POWDER BURN AREA 5 (TOWER TWO ROAD)	200107
FTSL-031	POWDER BURN AREA 6 (GATE 6)	200107
FTSL-032	POWDER BURN AREA 7 (BLUE BEAVER CREEK)	200107
FTSL-033	POWDER BURN AREA 8 (QUANAH RANGE)	200107
FTSL-036	POST LAUNDRY WASTEWATER LAGOON	199909
FTSL-037	WASTEWATER TREATMENT PLANT	199706
FTSL-038	LAKE ELMER OXIDATION LAGOONS	199909
FTSL-039	VEHICLE WASHRACKS	199809
FTSL-040	BATTERY ACID DISPOSAL PIT	200209
FTSL-041	WASTE BATTERY ACID UST	199606
FTSL-042	PAINT THINNER DISPOSAL AREA	200407
FTSL-043	HAZARDOUS WASTE STORAGE AREA	199302
FTSL-044	USED OIL USTS TANKS	199709
FTSL-045	FIRE TRAINING AREA	200304
FTSL-048	CONTAMINATED FUEL ACCUMULATION AREA	199607
FTSL-049	OIL/WATER SEPERATOR AT 1/78 TH MOTOR POOL	199606
FTSL-050	PAINT SHOP BUILDING 1950	199606
FTSL-051	ASPHALT SPILL SITE	200206
FTSL-052	SPILL SITE AT DEH UST	199606
FTSL-053	PATHOLOGICAL AND INFECTIOUS WASTE INCINERATOR	199606
FTSL-054	CLASSIFIED DOCUMENTS INCINERATOR	199606
FTSL-055	BATTERY ACID NEUTRALIZATION TANK	199606
FTSL-056	CHEMICAL STORAGE SHED NEAR BLDG 2261	199606

ER,A RESPONSE COMPLETE SITES

AEDB-R #	AEDB-R Title	RC Date
FTSL-057	PAINT BOOTHS - BUILDING 2271 AND BUILDING 2272	199606
FTSL-058	CAPACITOR STORAGE AREA, BUILDING 1931	199606
FTSL-059	CAPEX AREA – UXO CLEARANCE	199909
FTSL-060	BUILDING 4700 – HOSPITAL LABORATORY	199709
FTSL-061	EQUIPMENT MAINTENANCE SHOP SPILL AREA	199004
FTSL-062	UNDERGROUND PETROLEUM TANK	199404
FTSL-063	UST AT ADAMS HALL, BLDG 5020	199412
FTSL-064	BLDG 2209 – OPEN PIT, FORMER UST	199807
FTSL-065	UXO CLEARANCE – BLUE BEAVER	200001
FTSL-066	UXO CLEARANCE – SPOTS RANGE	200001
FTSL-067	UXO CLEARANCE – POTATO HILL	200001
FTSL-068	UXO CLEARANCE – MCKENZIE HILL	200001
FTSL-069	UXO CLEARANCE – ROCKET POND	200001
FTSL-070	BULK POL STORAGE AREA, BLDG 2330	199612
FTSL-089	DUMPING SITE AT KETCH LAKE BUNKER	199811
FTSL-090	OLD MEDICAL WASTE INCINERATOR	200209

FTSL-001 THROUGH FTSL-005 LANDFILLS 1A-1E

SITE DESCRIPTION

When Fort Sill opened in 1869, rubbish was disposed of randomly over the surrounding countryside. This original disposal area extended from an area near Hoyle Bridge to Quarry Hill area. Disposal operations were erratic over the entire area, with two distinct areas of rubbish burning concentrated in a swale along the middle of the landfill area. Salvage archaeology efforts have identified five main landfill areas that received material over different periods, ranging from 1870 to 1920. This area is now bottomland forest with no visible signs of surface dumping or open burning. The unit was used for disposal of rubbish of a non-hazardous nature.

Due to the nature of the waste involved and the age of the site, this unit poses no or limited risk to human health and the environment.

The description from the U.S. Army Environmental Hygiene Agency Report, dated January 1987, of this site location identifies the area to be underlying what is known as Landfill 12A and 12B.

A “No Further Response Action Plan” will be written and submitted to ODEQ for concurrence.

STATUS

RRSE: NE

CONTAMINANTS: None

MEDIA OF CONCERN: None

<u>PHASES</u>	<u>Start</u>	<u>End</u>
PA	198708	199004
SI	198708	199004

RC: 199004

LANDFILL 2 (CAMP DONIPHAN)

SITE DESCRIPTION

The unit was reportedly used for disposal of miscellaneous rubbish during the World War I era (ca. 1917). Camp Doniphan-Landfill 2 was reportedly the main landfill for Camp Doniphan. The exact location and size of this landfill is still unknown; however, it reportedly occupied an area west of Building 3990 south side of Mow-Way road (April 1990 RFA). There may be a second possible location north of Mow-Way road and west of Building 3312. This area is currently well vegetated and there is no evidence of a landfill. Due to the nature of the waste involved and the age of the site, this site poses no human health or environmental Risk.

A “No Further Action Plan” will be written and submitted to ODEQ in the future.

STATUS

RRSE: NE
CONTAMINANTS: None
MEDIA OF CONCERN: None

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004

RC: 199004

LANDFILL 3 (HEYLES HOLE)

SITE DESCRIPTION

Landfill 3 Heyles Hole is a deep scour-channel in the creek bed of Medicine Creek located roughly 1 mile northwest of the Post Cantonment Area. The exact dates of operation of this unit are unknown. This unit operated some time prior to 1910 when it was discovered during a water supply investigation. This unit was reported to manage approximately one million rounds of defective .45 - 70-caliber cartridges. Some of the materials were removed during the 1910 water supply investigation. It is not known how much was removed or how much remains. Sampling was recommended by the April 1990 RFA prepared by PRC.

This landfill was one of the 16 sites included in the April 1991 RFA conducted by Radian. Field investigations under the April 1991 RFA consisted of the collection and analysis of surface water and bottom sediment samples. Lead was the only contaminant of detectable levels in stream sediments. It was detected at questionable levels in the two samples collected in the channel immediately downstream of Heyles Hole, but was detected at a confirmable level in sediment collected from the hole. The surface water that was collected did not contain lead in detectable concentrations.

Fort Sill contracted with CESWT, to conduct further site investigation, between 1998 and 1999. A final report was completed June 1999, and submitted to the Oklahoma Department of Environmental Quality (ODEQ) for final review. ODEQ letter dated 22 November 1999 was issued with no further action on this site.

STATUS

RRSE: Low

CONTAMINANTS: Heavy Metals

MEDIA OF CONCERN: Soil,
Surface Water, Sediment

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI/FS	199804	199911

RC: 199911

FTSL-015

LANDFILL 11

SITE DESCRIPTION

Landfill 11 is a group of three distinct and separate landfills that were used between 1970 and 1985. Each is characterized by widely differing hydrogeologic systems. The separate landfill areas are designated as: 11A (1,500 x 800 ft, north to south, an area approximately 28 acres), 11B (two landfills, 1,200 x 400 ft, north to south, an area approximately 11 acres), and 11C (500 x 200 ft, an area approximately 2.5 acres). The landfill is located between Cache Creek Road and East Cache Creek for a distance of about one mile. The three principal segments of the landfills are separated from each other by about 1,000 feet. Waste consisted primarily of construction debris, ammunition boxes, and packing material. Approximately 9,000 cy of construction debris was disposed of at this site each month during the operating life. Approximately half of the landfill area is currently leased for agricultural purposes.

In March and April 1986, a geohydrologic study was conducted by USAEHA. In April 1990, PRC Environmental completed the RFA and recommended the collection of additional soil and groundwater samples. The April 1991 Radian Corp RFA conducted soil and groundwater sampling and installed seven groundwater monitoring wells.

The groundwater monitoring system at this site was evaluated and upgraded by Parsons in early 1995. There were sixteen monitoring wells throughout the three locations. The RI/FS began in 1995. Groundwater monitoring was initiated at this site due to EPA Region VI concerns regarding this site.

Groundwater was monitored for a five-year period to determine impact on the groundwater quality. In FY2000, the five-year groundwater monitoring program was completed at this site. On 22 February 2001, the site Groundwater Monitoring Program Report was submitted to ODEQ. To support the findings of the Groundwater Monitoring Report, the U.S. Corps of Engineers prepared a separate Groundwater Analyses Statistical Summary report which the Mobile District completed in August 2001 and submitted to the ODEQ in September 2001. On 20 August 2002, ODEQ issued a NFA letter. In December 2002, the groundwater monitoring wells were removed.

STATUS

RRSE: Low
CONTAMINANTS: Heavy Metals, Hydrocarbons
MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199506	200209
LTM	200209	200503

RC: 200209

FTSL-016

LANDFILL 12

SITE DESCRIPTION

Landfill 12 is located along the west side of East Cache Creek from Hoyle Bridge extending approximately one mile to the south. Building 6130 and Carkener Street bound the west side of the site. The landfill area is approximately 21 acres in size. Landfill 12 was closed prior to 1984 (AEHA Hazardous Waste Consultation, January 1987). The type of wastes in the landfill area included household debris, personal items, military articles, and building rubble. The site is well vegetated and there is no indication of exposed waste. The site is currently used for Basic Training activities, limited primarily to foot traffic.

In April 1990, PRC Environmental conducted a RFA (PA/SI) that recommended the collection of soil and groundwater samples to determine if hazardous constituents were present. In April 1991, Radian International conducted a RFA (PA/SI). Three monitoring wells were installed at the site as part of Radian's RFA field activities.

Parsons identified two distinct areas (based on the EM survey) -- Landfill 12A and Landfill 12. Landfill 12A is located south of Hoyle Bridge and north of Building 6007. This area is a long narrow site, generally running north to south, covering an area of approximately 1,800 feet by 200 feet (8.3 acres). The description of Landfill 12A seems to be overlying the locations of the historical Landfills 1A through 1E. Landfill 12B is located immediately adjacent to the eastern side of barracks Building 6007, west of East Cache Creek, and east of the intersection of Carkener and Rothwell Streets. The site is approximately 1100 feet by 500 feet (12.6 acres).

The groundwater monitoring system at this site was evaluated and upgraded by Parsons in early 1995. There were 17 groundwater monitoring wells within this area. The RI/FS began in 1995. Groundwater monitoring was initiated at this site due to EPA Region VI concerns regarding the proximity of this site to the shallow alluvial aquifers of East Cache Creek.

Groundwater was monitored for a five-year period to determine the impact on the groundwater quality. In FY2000, the five-year groundwater monitoring program was completed at this site. On 22 February 2001, the site Groundwater Monitoring Program Report was submitted to ODEQ. To support the findings of the Groundwater Monitoring Report, the U.S. Corps of Engineers prepared a separate Groundwater Analyses Statistical Summary report which the Mobile District completed August 2001 and submitted to the ODEQ in September 2001. On 20 August 2002, ODEQ issued a NFA letter. In December 2002, the groundwater monitoring wells were removed.

STATUS

RRSE: Low
CONTAMINANTS: Heavy Metals, Hydrocarbons
MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI	199506	200209
LTM	200209	200503

RC: 200209

FTSL-017 LEAF DISPOSAL AREA

SITE DESCRIPTION

The Leaf Disposal Area is approximately 1.5 to 2.0 acres in area. It is located immediately east of the Cantonment Area roughly 200 feet east of East Cache Creek between East Cache Creek and Beef Creek Road, near Hoyle Bridge.

The unit is well vegetated and shows no visible sign of leachate. The unit managed non-hazardous wastes (logs, branches, leaves, and stable sweepings).

PRC Environmental Management, Inc.'s, April 1990 RFA, recommended no further action at this site. This site is no longer in use and has not been since about 1995. A "No Further Action Plan" was submitted to ODEQ, May 2000. ODEQ issued a NFA letter on October 26, 2000.

STATUS

RRSE: NE

CONTAMINANTS: None

MEDIA OF CONCERN: None

PHASES	Start	End
PA	198708	199004
SI	198708	200005

RC: 200009

FTSL-018 WOOD DISPOSAL AREA

SITE DESCRIPTION

The Wood Disposal Area, approximately 200 square meters, is located north of the Cantonment Area between North Boundary Road and the north boundary of the Military Reservation near Apache Gate. This area currently serves as a wildlife habitat.

The unit is well vegetated and shows no visible sign of leachate. The unit managed non-hazardous wastes wood debris (tree limbs, stumps, and scrap wood, including wooden pallets).

PRC Environmental recommended in the April 1990 RFA, no further action at this site. This site is no longer in use and has not been since about 1995. A "No Further Action Plan" was submitted to ODEQ, May 2000. ODEQ issued a NFA letter on October 26, 2000.

STATUS

RRSE: NE

CONTAMINANTS: None

MEDIA OF CONCERN: None

PHASES	Start	End
PA	198708	199004
SI	198708	200005

RC: 200009

POSSIBLE CLASSIFIED MATERIAL DISPOSAL

SITE DESCRIPTION

The exact location of this disposal site is not known and actual existence is in question. During the PRC January 1990 RFA site investigation, the location of the site could not be determined. Fort Sill personnel conducted further site investigation and could not determine the exact location of the site. The suspected area now appears as an open, grass-covered field west of Buildings 2286. There are no visible signs of a landfill or surface disposal area.

A “No Further Action Plan” will be written and submitted to ODEQ for concurrence.

STATUS

RRSE: NE

CONTAMINANTS: None

MEDIA OF CONCERN: None

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004

RC: 199004

LANDFILL 16 (A & B)

SITE DESCRIPTION

Not ER,A eligible.

Landfill 16A which was previously included in this site description has been deleted. Landfill 16A is synonymous with FTSL-014 Landfill 10 (SWMU #010). It was erroneously included in this site description as Landfill 16A.

Landfill 16B is the current Fort Sill Municipal Solid Waste Landfill (MSWLF), and is regulated by the ODEQ under O.A.C. 252:510, which is the regulation for Oklahoma’s delegated RCRA Subtitle-D program. This site is currently operational; therefore, not eligible to be in the Environmental Restoration Program.

STATUS

RRSE: Low

CONTAMINANTS: None

MEDIA OF CONCERN: None

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004

RC: 199004

FTSL-021

LANDFILL 17 (CAMP EAGLE)

SITE DESCRIPTION

Landfill 17 is a single-trench landfill that was operated for Camp Eagle around 1968 to 1969. The unit is well vegetated and shows no visible sign of leachate. The unit formerly managed non-hazardous wastes (sanitary wastes).

Further site investigation and assessment was performed by CESWT in the summers of 1998 and 1999. The final site report was originally submitted on or about 13 December 1999 to ODEQ for review. On Oct 26, 2000, the report was resubmitted as the original report could not be located. ODEQ issued a NFA letter on 30 July 2001.

STATUS

RRSE: Low

CONTAMINANTS: None

MEDIA OF CONCERN: None

<u>PHASES</u>	<u>Start</u>	<u>End</u>
PA	198708	199004
SI	198708	199912

RC: 200107

FTSL-022

CRATER CREEK CANYON DEMO AREA

SITE DESCRIPTION

The Crater Creek Canyon Demolition Area site is located in the western part of Fort Sill Military Reservation and the site was established in 1966. The disposal of Unexploded Ordnance (UXO) and other explosive material was conducted in blasting pits in the western portion of Crater Creek Canyon Demolition Area. The area consists of three trenches and one active ordnance disposal (OD) area. All three of the trenches have been filled with construction debris and metal part fragments and covered with soil. Additionally, closed demolition pits are located in the southern portion of the Crater Creek demolition area.

In April and May 1990, during the RFA investigation by Radian Corp., three groundwater monitoring wells were installed. Included in the investigation, groundwater, surface-water, surface-soil and sub-surface samples were taken. This site required extensive EOD clearance prior to the start of the field activities. Human Factors Applications, Inc. conducted the EOD clearance in November 1994.

The groundwater monitoring wells were removed in September 2003. The final NFA report was approved by ODEQ on October 14, 2004.

STATUS

RRSE: Low

CONTAMINANTS: Heavy Metals, Hydrocarbons

MEDIA OF CONCERN: Soil, Groundwater

<u>PHASES</u>	<u>Start</u>	<u>End</u>
PA	198909	199102
SI	198909	200009
RI	200009	200309
LTM	200403	201409

RC: 200309

BATEMAN WOODS DEMOLITION AREA

SITE DESCRIPTION

The Bateman Woods demolition area is a closed ordnance disposal area that was used for the detonation of unknown types of ordnance from the 1910s through the 1950s. From records and a site inspection in October 1989, no evidence of an ordnance demolition (OD) operation remains. Collection of soil and groundwater samples was recommended by the RFA conducted by PRC Environmental in 1990.

In May 1990, during the RFA investigation by Radian Corp., three groundwater monitoring wells were installed. In 1991, soil and groundwater samples were collected under the RFA. Small concentrations of pesticides were detected in surface samples. This is probably due to the application of pesticides over the years. Metals and explosives were detected in soil. No groundwater contamination appears to exist at the site based on analyses performed. No organics were detected that could not be explained by lab contamination. Inorganic concentrations were within natural ranges, and no obvious trends were evident in this data. This site required extensive EOD clearance prior to the start of the field activities. Human Factors Applications, Inc. conducted an EOD clearance in November 1994.

The first round of the RI Phase was conducted in summer 2001. During this first round, the 3 existing groundwater monitoring wells were evaluated, the installation of six additional groundwater monitoring wells occurred, and the sampling of surface soil, sub-surface soil and groundwater was performed. Metals and explosives were detected in both soil and groundwater.

Additional groundwater sampling was conducted. A limited Human Health Assessment was also conducted, followed by a Risk Based Closure Report.

ODEQ issued a NFA letter dated February 3, 2005. In June 2005, the groundwater wells were removed and plugged. This site is response complete. No further action is planned.

STATUS

RRSE: Low

CONTAMINANTS: Metals, 2,4-DNT, 2,6-DNT

MEDIA OF CONCERN:

Soil, Groundwater

PHASES	Start	End
PA	198909	199102
SI	198909	200009
RI	200009	200409
LTM	200410	200503

RC: 200409

SOUTH ARBUCKLE DEMOLITION AREA

SITE DESCRIPTION

The South Arbuckle Demo site is located approximately one-half mile south of Menopher Hill in the southeast section of the South Arbuckle Impact Area. This area was used to detonate unknown types of ordnance before 1954. In 1990, collection of soil and groundwater samples was recommended by the RFA conducted by PRC Environmental.

In 1991, soil and groundwater samples were collected under the RFA. There are three groundwater-monitoring wells installed at this site. Minor surface soil contaminated with pesticides appears to exist at this site. However, deeper soil samples and groundwater samples do not show the presence of these pesticides. Several metals were detected in some soil samples, but no trends are evident and the concentrations are all at extremely low. In November 1994, Human Factors Applications, Inc. conducted ordnance removal at this site.

The three groundwater monitoring wells were removed in September 2003 and NFA was approved by ODEQ on October 14, 2003.

STATUS

RRSE: Low

CONTAMINANTS: Metals, 2,4-DNT, 2,6-DNT

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
PA	198909	199102
SI	198909	200009
RI	200009	200309

RC: 200309

CHATTO FLATS DEMOLITION AREA

SITE DESCRIPTION

A significant portion of Chatto Flats was identified as an ordnance detonation area used prior to 1966. The RFA conducted by PRC Environmental in 1990 recommended collection of soil and groundwater samples. This area covers approximately 29 acres.

Radian in 1991, installed three groundwater monitoring wells and collected soil and groundwater samples. Soil contamination was limited to surface contamination by agricultural pesticides.

In July 2001, the three permanent monitoring wells were evaluated and the installation of seven temporary micro-wells were installed during which time sampling of soil and groundwater was conducted

ODEQ issued a NFA letter on August 23, 2004. In June 2005, all the groundwater wells were removed and plugged (funded under FTSL-023).

STATUS

RRSE: Low
CONTAMINANTS: Heavy Metals, Hydrocarbons
MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
PA	198909	199102
SI	198909	200009
RI	200009	200409

RC: 200409

POWDER BURN AREA 1 (ADAMS HILL)

SITE DESCRIPTION

Powder Burn Area 1 (PBA) is identified in the RFA as the Adams Hill Area. It is located 1.5 miles east of the Cantonment Area near the south boundary of the Fort Sill Military Reservation between Lake George and the Helicopter Landing Area. This area was approximately 17.32 acres. However, the exact location of PBA 1 could not be determined. Furthermore, there is no remaining evidence of burning activities.

It was reported to have supplementary charges, propellants, and pyrotechnics was burned at this site for many years. Residues from past explosive burning activities may have contaminated the soils with lead and explosives. The April 1990 RFA conducted by PRC recommended collection of soil and groundwater samples.

The area described in the RFA as the location for this unit was investigated further by Crystal Creek Environmental Solutions, Inc. (CCES), 22 January 1996. CCES conducted soil sampling and analysis to delineate this site. Soil analysis consisted of in situ field analysis for lead using X-Ray Fluorescence (XRF) with confirmation samples being taken for total lead. Lead was used as an indicator parameter because it would be present at high levels at all known PBAs on Fort Sill and is readily detectable and relatively affordable to screen for. No area of elevated lead levels was found at PBA 1, therefore, this site was not considered for any additional actions. Parsons Engineering Science, report dated June 1996, performed an investigative review of this site and concluded the same as CCES. The CCES Final Report was submitted to ODEQ on 30 August 2000. Final closure was obtained on 13 July 2001.

STATUS

RRSE: NE

CONTAMINANTS: Explosives,
Heavy Metals

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	198708	199601

RC: 200107

POWDER BURN AREA 2 (BALD RIDGE ROAD)

SITE DESCRIPTION

The Bald Ridge Powder Burn, also known as East Range Powder-Burn Area and Powder-Burn Area No. 2, is located in the Beef Flats area, just south of, and adjacent to, Bald Ridge Road, about one-half mile north of Hoyle Bridge. The actual site occupies approximately 0.5 acres and is situated in a slight depression. Surface drainage runs into this area, and during wet weather, there is some ponding of the run-off. While there is no observable evidence of drainage, either run-on to the burn area or run-off to the Cache Creek drainage basin, heavy seasonal precipitation could flood the depression and result in a surface drainage event. This unit was closed in 1992, and warning signs are posted around the burn area.

There is documented evidence of contamination of surface soils with lead and explosives in a Hazardous Waste Study conducted by USAEHA in 1984. The unit has no known liner. Collection of soil and groundwater samples was recommended in the PRC's April 1990 RFA. CESWT conducted a Site Investigation with the report dated, March 1993. During this investigation sampling of soil and water was performed, along with the installation of 3 monitoring wells in March 1992. The RA performed at this site, associated with 1383# sils930005, and was in situ stabilization and removal of contaminated soils. OHM completed the remedial action in 1995.

The final closure report is dated July 10, 1996. Three additional groundwater monitoring wells were installed in the summer of 1995 (Parsons, 1996). The groundwater monitoring program was completed in October 1999. The final report was submitted to ODEQ on September 21, 2000. ODEQ issued final closure on July 12, 2001. The six groundwater monitoring wells were removed in November 2001.

STATUS

RRSE: Low

CONTAMINANTS: Lead, Cadmium, Barium

MEDIA OF CONCERN:
Soil, Groundwater, Surface Water

PHASES	Start	End
PA	198708	199004
SI	198708	199004
RI/FS	199201	199511
RA(C)	199511	199607

RC: 200107

POWDER BURN AREA 3 (APACHE GATE)

SITE DESCRIPTION

The Apache Gate Powder Burn Area No. 3 is located 2.5 miles north of the Cantonment Area between Snow Ridge and the H.E. Bailey Turnpike, east side of Apache Gate Road. This PBA encompasses approximately 6 acres (Crystal Creek Environmental Solution, Inc. (CCES), 1996). There is no remaining evidence of burning activities. The exact location of this PBA cannot be determined.

Propellants and other explosive wastes were burned in this area for an unknown period of time. Residues from past explosives burning activities may have contaminated the soils with toxic or hazardous wastes. Collection of soil and groundwater samples was recommended in the April 1990 RFA conducted by PRC.

The area described in the RFA as the location of the SWMU was screened with an XRF and sampled for total lead in an effort to determine its exact location, conducted by CCES in the summer of 1995. Lead was used as an indicator parameter because it is present at high levels at all known PBAs on Fort Sill and is readily detectable and relatively affordable to screen for. Elevated lead levels were not found at this SWMU; therefore, it was not considered for additional actions. Based on the CCES January 1996 investigative report, no further action was proposed to ODEQ. The CCES Final Report was submitted on August 30, 2000 to ODEQ. Fort Sill obtained final closure on July 12, 2001.

STATUS

RRSE: NE
CONTAMINANTS: Explosives,
Heavy Metals
MEDIA OF CONCERN:
Soil

PHASES	Start	End
PA	198708	199004
SI.....	199004	199609

RC: 200107

POWDER BURN AREA 4 (CHRYSTIE HILL)

SITE DESCRIPTION

Chrystie Hill PBA 4 is located adjacent to Punch Bowl Road, approximately 1.5 miles north of the cantonment area. Fort Sill used this site to burn artillery propellant left over after practice firing. Propellant was contained in bags lined with lead while burning. As a result, lead and propellant residues contaminated the surface soil.

The collection of soil and groundwater samples for further site investigation was recommended in the April 1990 RFA conducted by PRC. Crystal Creek Environmental Solutions performed further site investigation. This was field reconnaissance and sampling to define the boundary and do surface sampling at the site. The techniques used were XRF screenings coupled with confirmatory laboratory analytical data.

Parsons Engineering Science followed-up with additional site investigation between summers of 1995 through 1996, with the final report dated June 1996. Fort Sill then contracted with OHM, through the CESWT, to complete the in situ stabilization and the removal of contaminated soils in the summer of 1998. Following the remediation of this site, the site was backfilled with compost and re-seeded by seed drilling to complete site restoration.

No further action was proposed to ODEQ in the final Chrystie Hill Powder Burn Area Closure Report dated January 29, 1999, and submitted to ODEQ on August 30, 2000. Fort Sill obtained final closure from ODEQ on July 12, 2001.

STATUS

RRSE: Low

CONTAMINANTS: Explosives,
Heavy Metals

MEDIA OF CONCERN:
Soil

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004
RA(C)	199803	199909

RC: 200107

POWDER BURN AREA 5 (TOWER TWO ROAD)

SITE DESCRIPTION

This burn area is located immediately adjacent to the quad marker tower number 2 (concrete observation tower) and Tower Two Road. This site rests on the top of a broad, relatively flat hill. Drainage from the site is to the east on an approximate 2-3 percent slope. This burn area was in use for an indefinite period of time. The surface soils of the unit are stained and charred, exhibiting obvious signs of contamination. There is documented evidence of contamination of surface soils with lead and explosives in a Hazardous Waste Study conducted by USAEHA in 1984. The unit has no known liner. Collection of soil and groundwater samples was recommended in the PRC's April 1990 RFA.

CESWT conducted a Site Investigation with the report dated, March 1993. During this investigation soil and water sampling was performed along with the installation of 3 monitoring wells in January 1992.

The removal action performed at this site associated with 1383# sils930005 was in- situ stabilization and removal of contaminated soils through OHM and completed the remedial action in 1995 with final closure report dated July 10, 1996. Three additional groundwater monitoring wells were installed in the summer of 1995 (Parsons, 1996). The groundwater monitoring program was completed in October 1999. The final Groundwater Monitoring Report was submitted to ODEQ on September 21, 2000. Fort Sill obtained final closure from ODEQ on July 12, 2001. The three groundwater monitoring wells were removed in November 2001.

STATUS

RRSE: Low

CONTAMINANTS: Explosives,
Heavy Metals

MEDIA OF CONCERN:
Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004
RI/FS.....	199209	200107

RC: 200107

POWDER BURN AREA 6 (GATE 6)

SITE DESCRIPTION

Gate 6, PBA 6, is located 2 miles southwest of the Cantonment Area adjacent to the south boundary of Fort Sill, roughly 0.8 miles west of East Branch Wolf Creek. Specifically, it is bordered on the south by South Boundary Road and on the West by 52nd Street. It is 3,000 x 150 ft, encompassing approximately 10.3 acres. The extent of usage of this burn area is unknown. Residues from past explosives burning activities may have contaminated the soils with toxic or hazardous wastes. The site now appears as a wooded and grassy area with no remaining evidence of burning activities. Collection of soil and groundwater samples was recommended in the April 1990 RFA, conducted by PRC.

The area described in the April 1990 RFA as the location for the SWMU was screened with an XRF and sampled for total lead in an effort to determine its exact location. Lead was used as an indicator parameter because it is present at high levels at all known PBAs on Fort Sill and is readily detectable and relatively affordable to screen for. Elevated lead levels were not found at this SWMU; therefore, it was not considered for any additional actions.

No further action was proposed to ODEQ, based on the 1996 Crystal Creek Environmental Solution, Inc., investigative report. The 1996 CCES final report was submitted to ODEQ on August 30, 2000, with final closure obtained on July 12, 2001.

STATUS

RRSE: NE
CONTAMINANTS: None
MEDIA OF CONCERN: None

PHASES	Start	End
PA	198708	199004
SI.....	198708	199606

RC: 200107

POWDER BURN AREA 7 (BLUE BEAVER CREEK)

SITE DESCRIPTION

This remote burning area is located approximately 1/4 mile off Blue Beaver Creek Road, immediately adjacent to the small arms and moving target ranges, and just north of Gruber Hill. Drainage from the site is to the west toward Blue Beaver Creek, with an approximate 5-percent slope. There is documented evidence of contamination of surface soils with lead and explosives in a Hazardous Waste Study conducted by USAEHA in 1984. The unit has no known liner.

Collection of soil and groundwater samples was recommended in the April 1990 RFA. CESWT conducted a Site Investigation dated March 1993. During this investigation, soil and water sampling were performed along with the installation of 3

monitoring wells in January 1992. A limited risk assessment was performed by Caldwell Environmental Associates to evaluate the reasonableness of the action levels in August 1995. The EOD subsurface scan was performed by USACE-Huntsville District in October 1996.

The removal action performed at this site associated with 1383# sils930005 was in situ stabilization and removal of contaminated soils through OHM and completed the remedial action in 1995 with final closure report dated, 6 December 1996. The two-year groundwater monitoring sampling program was completed in October 1999. The final report was submitted September 21, 2000 to ODEQ with final closure obtained on July 12, 2001. The three groundwater monitoring wells were removed in November 2001.

STATUS

RRSE: Low

CONTAMINANTS: Explosives,
Heavy Metals

MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004
RI/FS.....	199209	200107

RC: 200107

POWDER BURN AREA 8 (QUANAH RANGE)

SITE DESCRIPTION

Quanah Range, PBA 8, is located roughly 10 miles west of the Cantonment Area near the south boundary of Fort Sill between West Cache Creek and a Ruins Site adjacent to South Boundary Road. PBA 8 encompasses approximately 3.8 acres. The exact location of this PBA could not be determined. The extent of usage of this burn area is also unknown. Residues from past explosive burning activities may have contaminated the soils. There is no remaining evidence of burning activities. The April 1990 RFA, conducted by PRC, recommended the collection of soil and groundwater samples.

The area described in the April 1990 RFA, as the location for this site, was screened with an XRF and sampled for total lead in an effort to determine its exact location by Crystal Creek Environmental Solution, Inc. (CCES). Elevated lead levels were not found at this site; therefore, it is not being considered for additional actions at this time. Based upon the January 1996 CCES investigation a final closure report was submitted to ODEQ on 30 August 2000. Final closure was obtained on 12 July 2001.

STATUS

RRSE: NE
CONTAMINANTS: Explosives,
Heavy Metals
MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004

RC: 200107

POST LAUNDRY WASTEWATER LAGOON

SITE DESCRIPTION

The former Laundry Wastewater Lagoon was last used in 1973. Records indicate that approximately 400,000 liters of wastewater per day were discharged into the lagoon from Bldg. 5650, the post laundry. Building 5650 burned in 1983. The lagoon has since been filled and graded. The area now appears as a grass-covered field. Collection of soil samples to determine if hazardous constituents have contaminated the soil was recommended in the RFA that was conducted by PRC in April 1990.

The exact size of the former lagoon is not known. The site was adjacent to Building 5650. This area is now Constitution Park and contains numerous monuments. This site is bordered on the southeast by a small, unnamed creek, on the north by Sheridan Road, and on the west by the parking lot and driveways of the former Building 5650.

Fort Sill, through the CESWT, conducted further site investigation between 1998 and 1999. The final site report from this investigation was submitted to ODEQ with final closure for no further action issued on November 22, 1999.

STATUS

RRSE: Low
CONTAMINANTS: Hazardous
Constituents
MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	199506	199606
RI/FS.....	199609	199909

RC: 199909

WASTEWATER TREATMENT PLANT

SITE DESCRIPTION

There are 15 SWMUs located at the Wastewater Treatment Plant (WWTP) site. The 1990 RFA prepared by PRC recommended further investigation at ten of these sites. These sites are all being removed from service permanently during the upgrades to the WWTP. The SWMUs located at the WWTP are listed below. (These are closed/abandoned units) A site investigation was conducted by Woodward-Clyde, final report dated July 1996 and submitted to ODEQ on 30 August 2000. A No-Further-Action letter from ODEQ was dated April 16, 2002. The ODEQ has determined to incorporate these SWMUs into the current active wastewater treatment facility. These sites are regulated as part of the current Clean Water Act Permit and therefore are not eligible for ER,A funding.

- Grease Flotation Unit and Grease Dumpster
- Primary Clarifier Units
- Primary Trickling Filters
- Intermediate Clarifier
- Secondary Trickling Filters
- Final Clarifier
- Mixing Well
- Clariflocculator Units
- Multimedia Filtration Unit
- Sludge Drying Beds
- Primary Mixing Digester
- Secondary Settling Digester
- Influent Receiving Well
- Grit Elevator/Dumpster
- Former Chlorine Contact Tank

STATUS

RRSE: NE

CONTAMINANTS: Hazardous
Constituents

MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	199001	199004
SI.....	199601	199706

RC: 199706

LAKE ELMER OXIDATION LAGOONS

SITE DESCRIPTION

The Lake Elmer Thomas Recreation Area (LETRA) is located north of the Cantonment Area on the south edge of Lake Elmer Thomas. The two oxidation lagoons were reportedly constructed in 1971, and are on the side of a hill approximately 1,000 ft east of the entrance to LETRA, off Deer Creek Canyon Road. Each lagoon is approximately 120 x 300 ft, aligned along an east-west axis. The lagoons are unlined.

The two lagoons at LETRA receive domestic sanitary wastewater from the bathhouses, camping hookups, and buildings. Filter backwash from a small water treatment plant is also treated in the lagoons. The lagoons are authorized to discharge water under NPDES Permit No. OK0030317. These lagoons are operated as total retention lagoons. Due to seasonal usage, there is no discharge from these lagoons. Collection of soil samples to determine if hazardous constituents have contaminated the groundwater and soil was recommended in the 1990 RFA conducted by PRC.

Fort Sill contracted with the CESWT, to conducted further site investigation between 1998 and 1999. The final Site Report from this investigation was submitted to ODEQ for review. ODEQ issued a no further action letter dated 22 November 1999 for this site.

STATUS

RRSE: Low

CONTAMINANTS: Hazardous
Constituents

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	198708	199004
SI.....	199505	199606
RI/FS.....	199806	199909

RC: 199909

VEHICLE WASHRACKS (PAGE 1 OF 3)

SITE DESCRIPTION

There were 77 vehicle wash racks located on Fort Sill. Sixty-three of the wash racks were equipped with sand traps and oil interceptors. Of those, 27 discharged to the Installation's sanitary sewer system and 36 discharged to Installation's storm drainage system. This system consisted of three drainage areas that were sampled twice a month, NPDES Permit #OK0002216. The evaluation of the structural integrity of these units was required by the RFA conducted by PRC.

The primary concern with these units was the possibility of oils/oily waters bypassing the Oil/Water separators; thereby, discharging to the Waters of the U.S. These units may have been utilized for the management (dumping) of hazardous material from the 1940s through the early 1960s.

These units have been removed (with non-ER,A funding) and the closures reviewed and approved by the ODEQ, with a no further action letter dated September 1998.

STATUS

RRSE: NE

CONTAMINANTS: Petroleum Products

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004
RI/FS.....	199403	199606

RC: 199809

Washracks

<u>Washrack #</u>	<u>Location (Unit/Activity)</u>	<u>Equipped w/Sand Trap/ Oil Interceptor (Yes/No)</u>
PWO057	Fld Arty School	Yes
PWO844	Fld Arty School	Yes
PWO845	Fld Arty School	Yes
PW1618	Fire Department	Yes
PW1933	DEH	Yes
PW1935	DEH	Yes
PW2100	Arty Bd	Yes
PW2177	DIO-LOD	Yes
PW2456A	27-Jun	Yes
PW2258	DIO-LCOD	Yes
PW2275	DIO-LCOD	Yes
PW2403	47th FH	Yes
PW2580*	PX	Yes
PW2653	D/TCB	Yes
PW2789	TCB	Yes
PW2966	Inland Svc	Yes
PW2968	61st Ord	Yes
PW2959	PX	Yes
PW3037	Logistics	Yes
PW3353	(USARC) 122 ARCOM	Yes

VEHICLE WASHRACKS (PAGE 2 OF 3)

Washracks

<u>Washrack #</u>	<u>Location (Unit/Activity)</u>	<u>Equipped w/Sand Trap/ Oil Interceptor (Yes/No)</u>
PW3366	9-Mar	Yes
PW3992+	(OK ARNG)	Yes
PW3489	226 th	Yes
PW4916	(AV Wash Apron) 14 Avn	Yes
PW5086	14 Avn=	Yes
PW6106	WB + A Contr	Yes
PW6116	ATC	Yes
PW1481	2-Feb	Yes
PW1501	2-Feb	Yes
PW1502	2-Feb	Yes
PW1503	471	Yes
PW1504	Apr-31	Yes
PW1544	Apr-31	Yes
PW2030	DIO-LCOD	Yes
PW2411	#	Yes
PW2456	27-Jun	Yes
PW2461	Jun-33	Yes
PW2468	18-Mar	Yes
PW2477	Feb-37	Yes
PW2481	3/9 FA	Yes
PW2489	226th	Yes
PW2495	12-Jan	Yes
PW2576	299th Engr	Yes
PW2642%	212 Bd	Yes
PW2645	75th Bd	Yes
PW2720	#	Yes
PW2721	#	Yes
PW2722	#	Yes
PW2952	299th Engr	Yes
PW3155	Logistics	Yes
PW3210	Education Ctr	Yes
FW3459	18-Feb	Yes
PW3465	4-Apr	Yes
PW3474	Feb-34	Yes
PW3485	17-Jan	Yes
PW3848	#	Yes
PW3849	#	Yes
PW4014	B/TCB	Yes
PW4015	B/TCB	Yes
PW4016	B/TCB	Yes

VEHICLE WASHRACKS (PAGE 3 OF 3)

Washracks

<u>Washrack #</u>	<u>Location (Unit/Activity)</u>	<u>Equipped w/Sand Trap/ Oil Interceptor (Yes/No)</u>
PW4206	#	Yes
PW4230	DI0-LCOD	Yes
PW4626	FATC-PP	Yes
PW1730	//	No
PW1945	//	No
PW1956	//	No
PW2255	//	No
PW2412	//	No
PW2424	//	No
PW2425	//	No
PW3211**	//	No
PW4050	//	No
PW4065	//	No
PW4204	//	No
PW5097	//	No
PW5421	//	No
PW5613	//	No

- * Formerly PW2581.
+ Formerly PW3392W.
Not currently assigned to a unit or activity (water has been turned off)
% Formerly PW2646.
// Unauthorized washracks which have been removed from the Real Property List. **
Connected to PW3210.

BATTERY ACID DISPOSAL PIT

SITE DESCRIPTION

An old waste, battery acid disposal pit was located between Buildings 2250 and 2251, off Catley Road. The pit was about 10 x 10 x 12 ft deep and was filled with limestone chips. Approximately 61,200 gallons of battery acid were disposed of in this unlined pit between 1965 and 1979. When the pit was closed in 1979, it was excavated and an unknown quantity of soil was hauled to the Fort Sill sanitary landfill.

USAEHA conducted two previous site investigations: Geohydrologic Study, March & April 1986, and the Hazardous Waste Consultation Evaluation of Solid Waste Management Units Final Report, January 1987. Two groundwater wells were installed during the April 1986 Geohydrologic Study. Further collection of soil and groundwater samples was recommended in the April 1990 RFA conducted by PRC.

Groundwater samples were collected under the RFA in 1991. No organic compounds were detected in the groundwater samples. Data for inorganic compounds, specifically chloride and sulfate, showed some significant increases downgradient of the pit. A final Removal Action was conducted in November 1993 by IT Corporation.

However, EPA Region VI personnel questioned the adequacy of the groundwater monitoring system at the site as well as the scope of the analysis performed at the site. The groundwater monitoring system at this site was evaluated and upgraded by Parsons Engineering, June 1996. The groundwater monitoring wells were sampled quarterly for two years. The last sampling event was completed August 2000. Results indicated no constituents of concern above Region 6 groundwater MCL screening levels. Two final reports were submitted to ODEQ on 1 October 2001 for regulatory review. One report was the IT Corporation's June 2001 "Closure Report Acid Neutralization System." This was the revised IT Corporation's May 1994 Closure Report Acid Neutralization System removal action report that was never submitted for regulatory review. The second report is the "Final Report Site Investigation Former Waste Battery Acid Neutralization Site (SWMUs 97, 98, 112)," September 2001 by the US Army Corps of Engineers-Tulsa District. This report consisted of the groundwater monitoring program results and evaluation. ODEQ concurred with Fort Sill's recommendation of NFA at this site with a NFA letter dated 25 February 2002. The three groundwater monitoring wells were removed in December 2002.

STATUS

RRSE: Low

CONTAMINANTS: Battery Acid, Solvents, Lead

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	198909	199102
SI.....	199506	199606
RI/FS.....	199609	200209

RC: 200209

FTSL-041

WASTE BATTERY ACID UST

SITE DESCRIPTION

This tank was a 6,000-gallon fiberglass tank that was removed, cleaned, destroyed and properly disposed of by Fort Sill EQD personnel in March of 1991. The Oklahoma State Department of Health approved the closure of the site in July of 1991. This is an operable unit with FTSL-040.

The original groundwater monitoring wells at the site were installed by the USAEHA in 1986. The adequacy of the groundwater monitoring system at the site, as well as the scope of the groundwater analysis performed at the site by USAEHA were questioned by EPA Region VI personnel in their proposed 3008(h) consent order.

The three groundwater monitoring wells at this site were evaluated and upgraded by Parsons Engineering, June 1996. The groundwater monitoring wells were sampled quarterly for a period of two years. The last sampling event was completed August 2000. The Final Contaminated Soil Removal Report and the Groundwater Monitoring Program Report were submitted on 1 October 2001 to ODEQ. ODEQ issued closure letter on February 25, 2002.

STATUS

RRSE: Low

CONTAMINANTS: Battery Acid, Solvents, Lead

MEDIA OF CONCERN: Soil, Groundwater, Air

PHASES	Start	End
PA	198708	199103
SI.....	199506	199606

RC: 199606

PAINT THINNER DISPOSAL AREA

SITE DESCRIPTION

The location of the former Paint Thinner Disposal Area was believed to be southwest of Building 2209; however, its exact location is unknown. Prior to 1981, ~900 liters/year of waste mineral spirits were reportedly poured over gravel in the parking lots adjacent to the paint shop at the 2200 area. The 2209 area of concern lies within an industrial portion of the Post. A drainage ditch receives drainage from the parking lot and flows to the East Branch of Wolf Creek.

The United States Army Environmental Hygiene Agency (USAEHA), in the “Final Report Hazardous Waste Consultation Evaluation of Solid Waste Management Units at Fort Sill” January 1987, first identified the former Paint Thinner Disposal Area. Then again, by PRC Environmental Management, Inc. April 1990 RFA prepared for the U.S. Environmental Protection Agency. The April 1990 RFA mentioned the possible site location at the Building 214 area. Both of these documents identified the site location of this Solid Waste Management Unit (SWMU) being in a gravel parking lot adjacent to and southwest of Building 2209. Parsons Engineering Science performed a limited site investigation of the Building 2209 area in June 1995.

A more extensive site investigation of both areas was conducted in April and July of 2000. Analysis indicated no volatile or semi-volatile compounds at Building 214. Low levels of soil contamination were detected near Building 2209. A Human Health Risk Assessment and a Risk-Based Closure Report were completed and submitted to ODEQ on 5 October 2001. In response to ODEQ comment letters dated 29 October 2001, March 21, 2002 and August 20, 2002, Fort Sill submitted ODEQ response letters on January 30, 2002, April 8, 2002 and December 23, 2002 respectively.

Bldg 2209 was demolished (non-ER,A funds) in spring 2004.

The Bldg 2209 area was paved using non-ER,A funds.

ODEQ has issued a NFA letter for the Building 214 location.

NFA has been agreed upon with ODEQ for Building 2209.

STATUS

RRSE: Low

CONTAMINANTS: Paint Thinner, Solvent

MEDIA OF CONCERN:

Soil, Groundwater, Surface Water

PHASES	Start	End
PA	198708	199004
SI	199506	199606
RI	199901	200407

RC: 200407

HAZARDOUS WASTE STORAGE AREA

SITE DESCRIPTION

Various types of containerized hazardous wastes were stored at Building 3320B and the outdoor storage area at the DRMO Facility. There was not a history of releases at this SWMU and appeared to be structurally sound during the VSI conducted in January 1990. No further action was recommended in the April 1990 RFA conducted by PRC.

This site has undergone closure in accordance with the Oklahoma State Department of Health (OSDH) (regulatory agency prior to ODEQ formation) closure plan. The closure of this site was approved by the OSDH on or about February 3, 1993.

STATUS

RRSE: NE

CONTAMINANTS: Hazardous Materials

MEDIA OF CONCERN: None

PHASES	Start	End
PA	198708	199110
SI.....	198708	199110

RC: 199302

USED OIL USTS (81) TANKS (PAGE 1 OF 3)

SITE DESCRIPTION

USTs at 73 locations have been removed. As these tanks were removed, soil and groundwater samples were required to determine if contamination occurred and if these sites may be considered closed.

Groundwater sampling and analysis is currently ongoing at the sites where soil contamination levels were high enough to require the collection of groundwater samples. These sites are being managed and closed under the authority of the Oklahoma Corporation Commission which has been delegated RCRA Subpart I primacy in the State of Oklahoma. The remedial actions at these sites were conducted with non-ER,A funding. The Oklahoma Corporation Commission has closed most, if not all, of these USTs. No further action will be proposed to the ODEQ for site closure as SWMUs. A “No Further Action Plan” was written and then submitted to ODEQ for concurrence.

STATUS

RRSE: NE

CONTAMINANTS: Petroleum Products

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	198708	199004
SI.....	198708	199004
RI/FS.....	199301	199308
RA(C)	199308	199709

RC: 199709

FORT SILL'S USED OIL TANKS

SWMU #	OCC TANK #	Location (Building No./Activity)	Number of Tanks	Size (gals)	Activity	Date Installed Year	Found in Exhibit 2-Apr	Removed From Ground
NA	205	812	1	250	Pershing	1983	yes	Mar-94
NA	108-112	840	5	500	Service	1978	yes	Mar-94
NA	115	1507	1	500	FABD	1978	yes	Mar-94
NA	116	1510	1	500	225	1978	yes	Mar-94
NA	117	1520	1	500	Apr-31	1978	yes	Mar-94
NA	118	1547	1	500	Apr-31	1978	yes	Mar-94
NA	119	1723	1	500	Autocraft	1974	yes	Mar-94
88	120	1935	1	500	Equip Maint	1978	yes	Mar-94
111	121	2035	1	500	TMP	1978	yes	Mar-94
NA		2183	1	500	Maintenance	1978	yes	
100	123	2255	1	500	Maintenance	1971	yes	Mar-94
37	124	2261	1	500	Maintenance	1982	yes	Mar-94
NA	125	2261	1	1000	Maintenance	1964	yes	Mar-94
NA	126	2286	1	500	LCOD	1978	yes	Oct-94
NA	127	2434	1	500	47	1982	yes	Mar-94
35	128	2454	1	500	27-Jun	1978	yes	Dec-93
33	129	2455	1	500	27-Jun	1978	yes	Dec-93
42	130	2460	1	500	Jun-33	1978	yes	Dec-93
44	131	2462	1	500	Jun-33	1978	yes	Dec-93
NA	132	2466	1	500	18-Mar	1978	yes	Jan-94

USED OIL USTS TANKS (PAGE 2 OF 3)

FORT SILL'S USED OIL TANKS

SWMU #	OCC TANK #	Location (Building No./Activity)	Number of Tanks	Size (gals)	Activity	Date Installed Year	Found in Exhibit 2-Apr	Removed From Ground
NA	133	2467	1	500	18-Mar	1978	yes	Jan-94
NA	134	2475	1	500	Feb-37	1978	yes	Jan-94
NA	135	2476	1	500	Feb-37	1978	yes	Jan-94
NA	136	2480	1	1000	9-Mar	1977	yes	Apr-95
NA	137	2487	1	500	226	1978	yes	Feb-94
NA	138	2488	1	500	226	1978	yes	Feb-94
NA	139	2493	1	500	12-Jan	1978	yes	Feb-94
NA	141	2494	1	500	12-Jan	1978	yes	Feb-94
NA	142	2500	1	500	226	1978	yes	
NA	143	2522	1	500	299	1978	yes	Feb-94
NA	144	2477 (2577)	1	500	299	1978	yes	Oct-94
55	145	2645	1	500	75th BGD	1978	yes	Oct-91
52	146	2646	1	500	212th BGD	1978	yes	Sep-91
NA	147	2652	1	500	D, TCB	1978	yes	Mar-94
NA	148	2952	1	500	299	1982	yes	Mar-94
NA	149	2963	1	500	Inland Svc	1978	yes	Dec-91
NA	150	3040	1	500	TAD	1978	yes	Oct-94
86A	184-187	3151	4	5362	CRMO	1976	yes	Apr-95
NA	151	3354	1	500	122ng ARCOM	1976	yes	Jan-94
57	152	3357	1	500	9-Mar	1978	yes	Dec-93
NA	153	3362	1	500	9-Mar	1978	yes	Oct-94
NA	154	3365	1	500	9-Mar	1978	yes	
58	155	3367	1	500	9-Mar	1978	yes	Dec-93
49	156	3457	1	500	18-Feb	1978	yes	Jan-94
45	157	3458	1	500	18-Feb	1978	yes	Jan-94
NA	158	3463	1	500	4-Apr	1978	yes	Jan-94
NA	159	3464	1	500	4-Apr	1978	yes	Jan-94
NA	160	3477	1	500	Feb-34	1978	yes	Jan-94
NA	161	3478	1	500	Feb-34	1978	yes	Jan-94
NA	162	3482	1	500	17-Jan	1978	yes	Dec-93
NA	163	3483	1	500	17-Jan	1978	yes	Apr-94
NA	164	3490	1	500	226	1978	yes	Dec-93
NA	165	3493	1	500	226	1978	yes	Dec-93
NA	166	3495	1	500	225	1978	yes	Dec-93
NA	167	3496	1	500	225	1978	yes	Dec-93
NA	168	4012	1	500	B, TCB	1978	yes	
NA	169	4908	1	500	14th	1978	yes	Nov-94
NA	DUP RFA	4908	1	500	14th	1978	yes	
NA	170	4915	1	500	14th	1978	yes	Nov-94
103	171	4920	1	500	200th	1978	yes	Aug-94
NA	172	4922	1	500	200th	1978	yes	Aug-94

USED OIL UTS TANKS (PAGE 3 OF 3)

FORT SILL'S USED OIL TANKS

SWMU #	OCC TANK #	Location (Building No./Activity)	Number of Tanks	Size (gals)	Activity	Date Installed Year	Found in Exhibit 2-Apr	Removed From Ground
NA	173	5005	1	500	14th	1978	yes	
NA	174	5006	1	500	May-68	1978	yes	Oct-94
NA		5037	1	500	Martin Marietta	1978	yes	
NA	176	5084	1	500	14th	1978	yes	Aug-94
NA	177	5086	1	500	14th	1978	yes	Aug-94
86B	99-100	5612	2	5362	Real Prop	1976	yes	Apr-95
NA	178	6103	1	500	WB&A	1976	yes	Jul-94
NA	179	6105	1	500	WB&A	1975	yes	Feb-92
NA	180	6114	1	500	A,TCB (ATC)	1976	yes	Jul-94
NA	181-183	6115	3	500	A, TCB	1976	yes	Jul-94
NA		2	1	500	OKC, OK	1973	yes	
NA	113	1501	1	500		1978	yes	Mar-94
NA	114	1503	1	500		1978	yes	Mar-94
83	19	5801	1	5362	Fire Training Area		no	Feb-92
	4							
104	8	5020	1	3000	Flight Sim.		no	Dec-94
108	122	2209	1	600	DOL Area Project		no	JAN'89

FTSL-045

FIRE TRAINING AREA

SITE DESCRIPTION

The Fire Training Area is near a radar site east of Interstate 44 and south of Sitting Bear Creek. The Fire Training Area measures 180 x 240 ft and is covered by gravel. The site consisted of one partially buried 500-gallon storage tank (UST) and three burn pits. Two of the burn pits are 25 x 25 ft in area and the third is round and 80-foot diameter. Various types of waste petroleum products, including various fuels and spent chlorinated and non-chlorinated solvents, were burned in the three fire pits over a 20 to 25 year period. The site ceased operation in 1987 and the fuel storage tank was removed in 1992.

The United States Army Environmental Hygiene (USAEHA) conducted a study of this site. Their report entitled "Evaluation of Fire Fighter Training Pits, Fort Sill, Oklahoma" was issued in June 1987. USAEHA conducted thirteen surface soil samples; one surface water sample and three boreholes were drilled and sampled during this study. The USAEHA report recommended that additional investigation be conducted. The April 1990 RFA conducted by PRC also recommended further investigation. Additional soil and groundwater samples were collected under the RFA in 1991. This study, by Radian, was in response to the USAEHA and PRC recommendations.

IT Corporation conducted a remedial action in June 1993 including the removal of an underground tank, its piping and the removal of contaminated soils. The May 1994 Final Closure Report was not submitted for regulatory review.

Parsons performed further site investigation, "Site Investigation of 34 SWMUs" Final Report, June 1996. Parson upgraded the three existing groundwater-monitoring wells and five additional wells were installed to ensure adequate groundwater monitoring and evaluation of the groundwater system. The Parsons June 1996 Report was submitted to the ODEQ for review.

EPA Region VI specifically requested the monitoring system at this site be evaluated and five years of quarterly groundwater monitoring results be obtained. This was to ensure the surface closure at this site addressed the potential for groundwater contamination.

The groundwater was monitored for five years to determine the groundwater quality. This five-year groundwater-monitoring program was completed in June 2000. The site Groundwater Monitoring Program Report was submitted to ODEQ, 22 February 2001. The May 1994 Final Closure Report was revised by IT Corporation as the June 2001 Final Closure Report Fire Training Area and re-submitted on 1 October 2001. The eight groundwater monitoring wells were removed in December 2002. A No-Further-Action letter from ODEQ was issued on April 10, 2003.

STATUS

RRSE: Low

CONTAMINANTS: Petroleum Products, Solvents

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	198909	199102
SI.....	198909	199102
RI/FS.....	199506	200304

RC: 200304

CONTAMINATED FUEL ACCUMULATION AREA

SITE DESCRIPTION

A 600-gallon aboveground storage tank, located in the parking lot, behind Building 3363, was used to temporarily store contaminated diesel from the motor pool. The tank was removed; however, soil testing was not conducted at the time of removal.

In the VSI conducted in 1990, an area of stained sand and gravel was noted in front of the tanks. The April 1990 RFA conducted by PRC recommended soil samples should be collected under an RFI to determine the extent of surface contamination.

In 1996, Parsons performed further site investigation ("Site Investigation of Thirty Four SWMUs"). At that time, one sample was collected with no significant concentration of contamination noted. Therefore, it has been determined this site requires no further remedial action. The 1996 Parsons report was submitted to the ODEQ for review. The tanks were removed with non ER,A funding. A written request for NFA plan was submitted to ODEQ for concurrence.

STATUS

RRSE: NE

CONTAMINANTS: Petroleum Products, Diesel Fuel

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199407	199408
SI.....	199407	199408

RC: 199607

OIL SEPARATOR AT 1/78TH MOTOR POOL

SITE DESCRIPTION

The unit is located at Building 6116, and was inactive at the time of the VSI in January 1990. It had not been pumped out in at least two years. An oily sheen was noted on the standing water in the unit. The RFA conducted by PRC recommended sampling the standing water to determine the presence or absence of hazardous constituents. The RFA also required determining if any contamination has occurred around the unit.

Additional SI and RI was completed and final report submitted to ODEQ. ODEQ issued a no further action letter dated September 1, 1998.

STATUS

RRSE: NE

CONTAMINANTS: Petroleum Products, Solvents

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199001	199009
SI.....	199001	199009
RI/FS.....	199506	199606

RC: 199606

FTSL-050 PAINT SHOP

SITE DESCRIPTION

The Paint Shop, located at Building 1950, is the site for painting signs. The shop has a concrete floor and a paint booth where potentially used paint thinner, oil and/or latex based paint wastes, and rags are stored on site prior to accumulation and proper disposal. The April 1990 RFA conducted by PRC describes the paint booth as a 10 x 12 ft booth, with a waterfall and exhaust fan filtration system. PRC, in 1990, recommended sampling the air from the air exhaust outlet under future investigation, to determine if any hazardous wastes or constituents are being released to the ambient air and causing the deposit of hazardous constituents in the soil adjacent to the paint shop.

Based on Parsons 1996 report, the paint booth was described as a recently constructed paint booth, 20 x 12 ft. It is equipped with metal entry doors, a roof mounted exhaust fan that vents to the atmosphere, and a filter system that generates a suction-type air current to direct and trap fine paint particles against the filters installed across the booth door. As a result of further inspection of this facility and the recommendations of the RCRA Facility Assessment (RFA), no surface or subsurface testing of soils or groundwater were performed.

Parsons Engineering Services also investigated this site in June 1996, Site Investigation of Thirty Four SWMUs. A "No Further Action Plan" will be written and then submitted to ODEQ for concurrence. This site is active and not eligible for ER,A funding.

STATUS

RRSE: NE

CONTAMINANTS: Volatile Organic Solvents

MEDIA OF CONCERN: Soil, Groundwater, Air

PHASES	Start	End
PA	199001	199009
SI.....	199001	199009
RI/FS.....	199506	199606

RC: 199606

FTSL-051

ASPHALT SPILL SITE

SITE DESCRIPTION

Two cylindrical AST steel tanks located behind Building 1815 were used to store asphalt road oil. The exact removal date of the tanks is not known; most likely it took place around 1992 or 1993.

During the VSI conducted in 1990, signs of spillage of the waste on the outside of the tanks and secondary containment structure were noted. RI/FS activities (drilling) at this site discovered that the ground under the tank site was saturated with asphalt emulsion to a depth of approximately 12 feet, which intersects the shallow groundwater and an adjacent stream in the area. Hydrocarbons from this site were causing an oily sheen in the adjacent stream, which is a Clean Water Act violation.

Parsons conducted additional site investigation in June 1996. Fort Sill contracted with IT Group, through CESWT to complete a RA with the removal of contaminated soils. Remedial action and site restoration was performed in January 1999, with the Final Closure Report dated November 1999. This report was submitted to ODEQ on August 30, 2000. A conditional closure was received from ODEQ on April 9, 2001. In February 2002 Fort Sill elected to remove the approximately 40 cy of affected soil that was left from the first removal action in 1999. The removal of the remainder of the asphalt contaminated soil was conducted Feb 2002. Clean Closure was issued by ODEQ on June 6, 2002.

STATUS

RRSE: Low

CONTAMINANTS: Asphalt, THP

MEDIA OF CONCERN: Soil,
Surface Water

PHASES	Start	End
PA	199001	199009
SI.....	199001	199009
RI/FS.....	199506	199606
RA(C)	200109	200205

RC: 200206

SPILL SITE AT DPW TANK AREA

SITE DESCRIPTION

This site consisted of six, 5500-gallon underground storage tanks (USTs) at two locations within the Cantonment Area of Fort Sill. Four, steel underground tanks were located at Building 3151 and two tanks were located at Building 5612. Tanks at Building 3151 area; OCC Tank #'s 184, 185, and 186 located on the east side of the former Building 3151, and OCC Tank # 187 located on the west side of the former Building 3151. Tanks at Building 5612 area; OCC Tank #'s 99 and 100. These tanks were originally used for gasoline and later converted to used oil storage tanks by DPW.

During the VSI conducted for the April 1990 RFA by PRC, signs of waste spillage on the soil were noted near the tanks. The surface contamination at this site was addressed during the tank removal activities. A removal action conducted by the IT Corporation removed the tanks and contaminated soil in April 1995.

This site was remediated with non-ER,A funding sources. These tanks have been closed through the Oklahoma Corporation Commission; closure date is 16 July 1996.

STATUS

RRSE: NE
CONTAMINANTS: POL
MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	199001	199009
SI.....	199001	199009
RI/FS.....	199506	199606

RC: 199606

FTSL-053

PATHOLOGICAL AND INFECTIOUS WASTE INCINERATOR

SITE DESCRIPTION

A gas-fired incinerator at Building 4701, adjacent to the Reynolds U.S. Army Community Hospital Building 4700, received medical waste from the hospital and outpatient clinics at Fort Sill. This unit was decommissioned in April 1995.

According to the April 1990 RFA conducted by PRC, the facility's most recent air quality permit (1981) does include this unit. The RFA recommended sampling the incinerator ash under an RFI to determine whether the ash contains hazardous wastes and to determine if emissions and ash from the unit have resulted in soil contamination.

Parsons Engineering Science conducted a site investigation in 1996. Shallow soil samples were collected from areas of exposed soil near the incinerator and out building. Based on metals analysis of surrounding soils in the shallow subsurface, no significant levels of contamination are present. The incinerator and storage facility have been deactivated. Therefore, vapor and smoke emissions have been eliminated. A final report written by Parsons June 1996 has been submitted to the ODEQ for review.

STATUS

RRSE: NE

CONTAMINANTS: Asphalt, THP

MEDIA OF CONCERN: Soil,
Surface Water

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199506	199606

RC: 199606

CLASSIFIED DOCUMENTS INCINERATOR

SITE DESCRIPTION

This classified documents incinerator was located outside Building 700, Knox Hall. The unit was a gas-fired, multi-chamber incinerator without emission control devices. The incinerator was closed and demolished in 1995.

The April 1990 RFA conducted by PRC recommended sampling the incinerator ash under an RFI to determine whether the ash contains hazardous wastes, and to determine if emissions and ash resulted in soil contamination.

Based on further inspections of this facility by Parsons (1996 report) and the recommendations of the 1990 RFA, surface and subsurface soil, groundwater, and surface water investigations were considered unnecessary.

This site was investigated by Parsons Engineering as part of the “Site Investigation of 34 SWMUs” Final Report, dated June 1996, and was submitted to the ODEQ for review.

STATUS

RRSE: NE

CONTAMINANTS: Hazardous Waste

MEDIA OF CONCERN: Air, Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199506	199606

RC: 199606

BATTERY ACID NEUTRALIZATION TANK

SITE DESCRIPTION

The Former Battery-acid Neutralization Tank System was located between Buildings 2250 and 2251. This system consisted of two underground storage tanks, each approximately 500-600 gallons. The purpose of the system was to neutralize battery acid before releasing it to the sewer system. The tanks were installed in 1987, but the system was taken out of service due to malfunctions. EPA Region VI personnel questioned the adequacy of the groundwater monitoring system at the site, as well as the scope of the analysis performed.

Parsons conducted additional site investigation in 1996. Groundwater samples were collected from existing wells at this location. No significantly elevated concentrations of metals were found in groundwater samples. The groundwater monitoring wells were sampled quarterly for a period of two years. The last sampling event was completed August 2000. The final Contaminated Soil Removal Report and the Groundwater Monitoring Program Report were submitted March 2001 to ODEQ. ODEQ issued closure letter on February 25, 2002. Groundwater monitoring wells were removed in December 2002.

STATUS

RRSE: NE

CONTAMINANTS: Heavy Metals

MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	199001	199004
SI.....	199506	199606

RC: 199606

CHEMICAL STORAGE SHED NEAR BLDG 2261

SITE DESCRIPTION

This SWMU Building 2273 was located south of Building 2261 within the DOL Area, which was used for the storage of paint related material. During the VSI conducted in 1990, this unit managed 23 drums of waste chemicals and drums of unknown contents. The April 1990 RFA conducted by PRC recommended that the storage area be properly placarded as a hazardous waste storage area and that the regulatory status of this unit be determined. Based upon the 1990 RFA recommendation, no further action is planned at this site. In 2002, the building was demolished for the new Unit Movement construction.

A written request for no further action will be submitted to the ODEQ. This building no longer exists.

This site was investigated by Parsons Engineering as part of the “Site Investigation of 34 SWMUs” Final Report, dated June 1996, and was submitted to the ODEQ for review.

STATUS

RRSE: NE
CONTAMINANTS: Hazardous Wastes
MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199506	199606

RC: 199606

FTSL-057

PAINT BOOTHS AT BLDG 2262

SITE DESCRIPTION

This SWMU comprises two, nearly identical paint booths located south of Building 2262. The booths are freestanding structures on concrete. The building numbers for these two booths are Building 2271 and 2272.

The 1990 RFA conducted by PRC recommended that samples of air from the exhaust outlet be collected under an RFI to determine if any hazardous wastes or constituents are being released to the ambient air, and if soil contamination has occurred.

Parsons Engineering investigated the site in June 1996, and the "Site Investigation of 34 SWMUs" Final Report was submitted to the ODEQ for review.

Based on further inspections of this facility by Parsons in June 1996, and the recommendations of the 1990 RFA, surface and subsurface soil, groundwater, and surface water investigations were considered unnecessary.

These paint booths are still in operation and operated under Clean Air Act permit 97-373-0-M2 issued by the ODEQ and are, therefore, ineligible for ER,A funding.

STATUS

RRSE: NE

CONTAMINANTS: Red Phosphates

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199506	199606

RC: 199606

FTSL-058

CAPACITOR STORAGE AREA, BLDG 1931

SITE DESCRIPTION

The Capacitor Storage Area is roughly 60 x 15 ft., and is located near Building 1931. Capacitors from around the base were temporarily stored at this site. The capacitors were then sampled and analyzed for PCBs.

Based on the recommendations in the April 1990 RFA, surface and subsurface soil, groundwater, and surface water investigations were considered unnecessary.

STATUS

RRSE: NE

CONTAMINANTS: PCBs

MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004

RC: 199606

CAPEX AREA – UXO CLEARANCE

SITE DESCRIPTION

This is one of six unexploded ordnance sites:

CAPEX AREA	(FTSL-059)
BLUE BEAVER	(FTSL-065)
SPOTS RANGE	(FTSL-066)
POTATO HILL	(FTSL-067)
McKENZIE HILL	(FTSL-068)
ROCKET POND	(FTSL-069)

Each of the above sites is an active range or a portion of an active range that may contain unexploded ordnance.

As active ranges, these sites are ineligible for the Environmental Restoration, Army (ER,A) program in accordance with attachment B of the “Installation Restoration Program Management Plan,” dated March 1999. No further action is planned for these sites under the current IRP activities. Future action at these sites will be addressed under the provisions of the Military Munitions Response Program. These ranges are still active ranges and are not eligible for the IRP or MMRP.

STATUS

RRSE: Low
CONTAMINANTS: None
MEDIA OF CONCERN: None

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004

RC: 199909

BUILDING 4700 – HOSPITAL LABORATORY

SITE DESCRIPTION

A hospital laboratory had a one-time process, which discharged a small quantity of mercury into the plumbing system.

The drain traps have been removed, sampled for contamination and disposed. Final site closure has been issued with a NFA letter from ODEQ on August 30, 2002.

STATUS

RRSE: NE
CONTAMINANTS: Mercury
MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199506	199606
RA(C)	199701	199709

RC: 199709

EQUIPMENT MAINTENANCE SHOP SPILL AREA

SITE DESCRIPTION

The Equipment Maintenance Shop, Building 1935, performs maintenance on large equipment, bodywork, lawn mower and fan repairs. Spent solvents and other waste cleaning materials are temporarily stored in small drums for pickup and disposal by a contractor. Waste oil is collected in drainage sumps that drained to a 500-gallon UST (FTSL-062, SWMU #88).

Based on the April 1990 RFA conducted PRC, no further action was recommended.

STATUS

RRSE: NE
CONTAMINANTS: POL
MEDIA OF CONCERN: Soil,
 Groundwater

PHASES	Start	End
PA	199001	199004
SI	199001	199004

RC: 199004

CONTAMINATED FILL AT INACTIVE STORAGE

SITE DESCRIPTION

This tank was a 500-gallon used oil tank located at Building 1935. This tank was removed in April 1994, soil evaluated and closed through the Oklahoma Corporation Commission.

STATUS

RRSE: NE
CONTAMINANTS: POL
MEDIA OF CONCERN: Soil,
 Groundwater

PHASES	Start	End
PA	199001	199004
SI	199001	199004
RI/FS	199004	199404

RC: 199404

ADAMS HALL, BLDG 5020 – SURFACE SPILL

SITE DESCRIPTION

This was a 3000-gallon heating fuel tank located north of Adams Hall, Building 5020.

This tank was removed in December 1994, and closed through the Oklahoma Corporation Commission.

STATUS

RRSE: NE
CONTAMINANTS: POL
MEDIA OF CONCERN: Soil,
 Groundwater

PHASES	Start	End
PA	199001	199004
SI	199001	199004
RI/FS	199004	199412

RC: 199412

BLDG 2209 – OPEN PIT, FORMER OIL STORAGE

SITE DESCRIPTION

This open pit was a former UST site used for disposal of waste petroleum, oils, and lubricants and vehicle service fluids within the Directorate of Logistics (DOL) area, located south of Building 2209. The UST was removed some time in 1989. The April 1990 RFA by PRC recommended soil samples be collected to determine the presence or extent of soil contamination. Further investigation of the site found the soil to be contaminated with TPH and methylene chloride.

Fort Sill contracted with IT Corporation through the CESWT to perform a complete remediation of this site. This site remediation was designated as the DOL SWMU Remediation Action instead of calling it SWMU #108 in the final reports. The “Closure Report DOL Area Site SWMU, July 1995” report was submitted to the ODEQ for regulatory review. ODEQ issued a no further action letter in July 22, 1998.

No further action.

STATUS

RRSE: NE
CONTAMINANTS: TPH
MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI	199001	199004
RI/FS	199404	199807

RC: 199807

FTSL-065

UXO CLEARANCE – BLUE BEAVER

SITE DESCRIPTION

This site is one of six unexploded ordnance sites. This site is within an active range and, therefore, ineligible for ER,A funding. A UXO clearance was complete. A final closeout report will be written in 2004 – 2005 by IRP Manager for submittal to ODEQ.

STATUS

RRSE: Low
CONTAMINANTS: UXO
MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199401	199409

RC: 200001

FTSL-066

UXO CLEARANCE – SPOTS RANGE

SITE DESCRIPTION

This site is one of six unexploded ordnance sites. This site is within an active range and, therefore, ineligible for ER,A funding. A UXO clearance was complete. A final closeout report will be written and then submitted to ODEQ.

STATUS

RRSE: Low
CONTAMINANTS: UXO
MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199401	199409

RC: 200001

UXO CLEARANCE – POTATO HILL

SITE DESCRIPTION

This site is one of six unexploded ordnance sites. This site is within an active range and, therefore, ineligible for ER,A funding. A UXO clearance was complete. A final closeout report will be written and submitted to ODEQ.

STATUS

RRSE: Low

CONTAMINANTS: UXO

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199401	199409

RC: 200001

UXO CLEARANCE – MCKENZIE HILL

SITE DESCRIPTION

This site is one of six unexploded ordnance sites. This site is within an active range and, therefore, ineligible for ER,A funding. A UXO clearance was complete. A final closeout report will be written and submitted to ODEQ.

STATUS

RRSE: Low

CONTAMINANTS: UXO

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199401	199409

RC: 200001

UXO CLEARANCE – ROCKET POND

SITE DESCRIPTION

This site is one of six unexploded ordnance sites. This site is within an active range and, therefore, ineligible for ER,A funding. A UXO clearance was complete. A final closeout report will be written and submitted to ODEQ.

STATUS

RRSE: Low
CONTAMINANTS: UXO
MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199001	199004
SI.....	199001	199004
RI/FS.....	199401	199409

RC: 200001

BULK POL STORAGE AREA, BLDG 2330

SITE DESCRIPTION

This site was the location of the Fort Sill bulk POL storage facility. During the past operation of the facility, several documented releases of POL occurred to the soil and groundwater.

Investigative efforts at this site in FY94 indicated that approximately 40,000 cubic yards of soil was contaminated in excess of Oklahoma Corporation Commission regulatory levels. The site was further complicated by the impermeable nature of the soil which limited the effectiveness of in situ treatment techniques and that the contaminated soil was overlain by approximately 50,000 cubic yards of non-contaminated overburden soils.

This site was remediated by over-excavation of POL-contaminated soil in 1995 by OHM Remediation Services Corp. The final report closure was completed and dated November 18, 1996.

The closure report for this site was submitted to the Oklahoma Corporation Commission for review and the final closure of this site. Final closure letter was issued February 4, 2003. Closure has been obtained from OCC. A “No Further Action Plan” was written and submitted to ODEQ for concurrence as a Area of Concern under CERCLA.

STATUS

RRSE: Low
CONTAMINANTS: POL, TPH
MEDIA OF CONCERN: Soil,
 Groundwater

PHASES	Start	End
PA	199405	199410
SI.....	199405	199410
RD.....	199411	199502
RA(C)	199503	199612

RC: 199612

DUMPING SITE AT KETCH LAKE BUNKER

SITE DESCRIPTION

This site consisted of three seismic survey wells (non-perforated or screened), which had been utilized for the unauthorized dumping of PCBs and oil. The wells were pumped out, cleaned, checked for integrity breaches with a down-hole camera, grouted and capped to prevent future dumping incidents. The remedial action was performed by IT Corporation in July 1995. ODEQ has issued a no further action letter dated November 1998. Two of the wells were removed at the time of remediation activities. The west pipe was fitted with a lockable lid, pipe bollards and a concrete slab. This well has since been removed at an unknown date.

STATUS

RRSE: NE
CONTAMINANTS: PCBs, Oil
MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	199407	199408
RA(C)	199408	199601

RC: 199811

OLD MEDICAL WASTE INCINERATOR

SITE DESCRIPTION

The site is located north of Building 475 and east of the satellite pad. Little is known about this incinerator. It could have operated any time between 1870 to about 1966, when Reynolds Army Community Hospital was built. This site was an old open pit incinerator and dumping location for ash and debris from the original Post Hospital, Building 467. The foundation of the incinerator remained and was approximately 8 x 10 ft. The site area measures roughly 50 ft. x 100 ft.

Significant hazards at the site are sharp objects imbedded in the ashes and heavy metals associated with typical medical waste after it is burned. The ash plume was approximately 25 x 75 ft. Children walk and ride their bikes through this area. The site is adjacent and uphill to a park and military training area. The hill is about 50-ft high with a steep incline. At the bottom of the hill is a flood plain for Medicine Bluff Creek. The area is currently fenced to limit access.

The PA/SI was conducted in FY2000. Preliminary analysis showed the presence of low levels of heavy metals contaminated soil at this site. Further site investigation and additional soil sampling on September 7-8, 2000 and on November 3, 2000 also show low levels of heavy metals contamination in soils. The RI/FS phase sampling events were used to delineate the site. The RI and Remedial Design (RD) were completed in FY01. An RA Work Plan was submitted to the ODEQ for review and regulatory concurrence 28 March 2001. The Removal Action (RA) phase was completed in August 2001, and consisted of the excavation and disposal of the non-hazardous ash and soil and the implementation of the hillside stabilization during restoration of the site. Final Technical Memorandum Completion Report Old Medical Waste Incinerator Site Removal Action Fort Sill, Oklahoma, 2 November 2001 was submitted to ODEQ on 19 December 2001. ODEQ responded with a No Further Action letter dated April 24, 2002.

STATUS

RRSE: Low

CONTAMINANTS: Heavy Metals

MEDIA OF CONCERN: Soil,
Groundwater

PHASES	Start	End
PA	200001	200006
SI.....	200006	200012
RI/FS.....	200101	200103
RD.....	200103	200107
RA(C)	200107	200209
LTM.....	200209	200309

RC: 200209

PAST MILESTONES

- 1988** Installation Assessment Completed
- 1992** USAEHA completed evaluation of Solid Waste Management Units
- 1993** Site Closure of FTSL-043
- 1994** Awarded contract for IRA for FTSL-039 for the various Wash Rack, SWMU-43
PA for FTSL-039 (SWMU-045) completed
SI for FTSL-039 (SWMU-045) awarded
- 1995** Completed Workplan for CMS at SWMU-018 and FTSL-029 (SWMU-026)
Awarded CMS for SWMU-018 and FTSL-029 (SWMU-026)
- 1996** Received final report for SWMU-045
Site Closure of FTSL-052
- 1997** Awarded CMIP for SWMU-018
- 1998** Awarded CMIP for FTSL-029 (SWMU-026)
Awarded contract for RA at SWMU-018
Site Closure of FTSL-007
Site Closure of FTSL-064
Site Closure of FTSL-089
- 1999** RI phase complete for FTSL-038
Site Closure of FTSL-038
Site Closure of FTSL-039
Site Closure of FTSL-036
Site Closure of FTSL-049
- 2000** Groundwater monitoring completed for: PBAs FTSL-027, -030, -032, Landfills FTSL-010, 011, 012, 013, 014, 015, 016
Remedial Investigation underway for FTSL-042, FTSL-008
Site Investigation underway for new ER,A site FTSL-090
Site Closure of FTSL-017
Site Closure of FTSL-018
- 2001** RI phase underway for FTSL-009, -022, -023, -024, -025, -047
RI/RD completed for FTSL-090 to be followed by the RA
RA phase complete for FTSL-090, submitted Removal Action Report to ODEQ
Site Closure of FTSL-026
Site Closure of FTSL-027
Site Closure of FTSL-028
Site Closure of FTSL-029
Site Closure of FTSL-030

PAST MILESTONES

Site Closure of FTSL-031
Site Closure of FTSL-032
Site Closure of FTSL-033
Site Closure of FTSL-021

- 2002** Removal action at FTSL-051 completed with final closure on June 6, 2002
ODEQ site closure of FTSL-090 dated April 24, 2002
ODEQ site closure of FTSL-040, FTSL-041 & FTSL-055 dated February 25, 2002
FTSL-060 site closure dated August 30, 2002
FTSL-010 site closure dated August 20, 2002
FTSL-011 site closure dated August 20, 2002
FTSL-012 site closure dated August 20, 2002
FTSL-013 site closure dated August 20, 2002
FTSL-014 site closure dated August 20, 2002
FTSL-015 site closure dated August 20, 2002
FTSL-016 site closure dated August 20, 2002
Conditional closure for FTSL-042 dated August 20, 2002
Conditional closure for FTSL-037 dated April 16, 2002
Submitted RI final report for site FTSL-008 April 9, 2002
- 2003** Submitted RI final report for site FTSL-009 January 3, 2003
FTSL-045 site closure dated April 10, 2003
- 2004** NFA for sites FTSL-022, 024, 047
FTSL-025 site closure dated August 23, 2004
- 2005** FTSL-008 site closure dated October 27, 2004
FTSL-009 site closure dated October 27, 2004
FTSL-023 site closure dated February 3, 2005

PROJECTED MILESTONES

Phase Completion Milestones: LTM will continue indefinitely.

Completion Date of IRP (including LTM phase): Indefinite

Fort Sill IRP Schedule

(Based on current funding constraints)

CURRENT PHASE

FUTURE PHASE

AEDB-R#	PHASE	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
FTSL-009	LTM										203409
FTSL-010	LTM										203209
FTSL-011	LTM										203209
FTSL-012	LTM										203209
FTSL-013	LTM										203209
FTSL-014	LTM										203209
FTSL-047	LTM										203209

PRIOR YEAR FUNDING

FY89	UST Removal and Cleanup Installation RI	233,771 643,940	877,711
FY90	Installation RI S&A SI-Site FTSL-002 RD - FTSL-001/004 RD – ALL	294,921 7,002 3,500 11,577	317,000
FY91	SI/SA FTSL TBD/A RA/SA FTSL-MUL/A RI/FS FTSL-TBD/B	21,515 9,309 15,000	45,824
FY92	UST Removal UST Removal	111,000 21,673	132,673
FY92	Unexploded Ordnance Mitigation AAFES Service Station	2,332,000 1,089,723	3,421,723
FY93	Installation Action Plan SWMU Investigation Installation IRP RD/RA	41,949 299,484 750,000	1,091,433
FY94	Unexploded Ordnance Mitigation SWMU Investigation Site Assessment/Closure Open Det. Site Closure SSTP SWMU Investigation SWMU Investigation	963,591 51,781 726,278 178,225 22,950 1,212,765	3,155,590
FY95	SWMU Investigation (AOC Landfills) WWTP SWMU Investigation Site Closure PBA Sites 039,048,089 Bulk POL (Bldg. 2330)	1,216,929 340,886 920,516 86,535 5,887,183	8,452,049
FY96	Powder Burn Areas PY S&A Bulk POL PY S&A AAFES Remediate 3 Sites SWMU Sites 039,048,089 AOC Landfills WWTP SWMU Inv. PY S&A	64,491 253,790 900 10,287 983,691 24,828	1,337,987
FY97	AOC Landfills PY S&A WWTP SWMU Inv.	90,267 26,000	

PRIOR YEAR FUNDING

	Powder Burn Area – Chrystie Hill	3,612	
	Powder Burn Area – Blue Beaver	3,612	
	Powder Burn Area – Quanah Range	3,612	
	SWMU Site 039, 048, 089 PY S&A	3,383	
	Bulk POL PY S&A	97,942	228,428
FY98	Bulk POL PY S&A	1,957	
	AOC Landfills PY S&A	35,303	
	Christy Hill PBA IRA	631,924	
	SWMU 3 Heyles Hole Inv.	19,150	
	Battery Acid Area GWM	20,465	
	SWMU #17 Camp Eagle Inv.	55,940	764,739
FY99	FTSL-039, -048, -089	6,440	
	FTSL-070	6,279	
	FTSL-029	23,505	
	FTSL-010	5,600	41,824
FY00	FTSL-008	57,000	
	FTSL-010,-011,-012,-013, -014,-015,-016	17,290	
	FTSL-029	3,218	
	FTSL-031	474	
	FTSL-032	474	
	FTSL-033	474	
	FTSL-041	33,577	
	FTSL-042	138,000	
	FTSL-045	2,465	
	FTSL-070	4,999	
	FTSL-090	33,000	290,971
FY01	FTSL-008	5,000	
	FTSL-009	347,290	
	FTSL-014	11,000	
	FTSL-022	20,971	
	FTSL-023	72,129	
	FTSL-024	24,329	
	FTSL-025	68,434	
	FTSL-027	6,597	
	FTSL-040	24,319	
	FTSL-042	9,365	
	FTSL-047	20,461	
	FTSL-051	43,264	
	FTSL-090	223,231	876,390

PRIOR YEAR FUNDING

FY02	FTSL-008	9,100	
	FTSL-009	77,200	
	FTSL-010	26,570	
	FTSL-011	26,570	
	FTSL-012	26,570	
	FTSL-013	26,570	
	FTSL-014	30,580	
	FTSL-015	38,570	
	FTSL-016	38,570	
	FTSL-023	85,800	
	FTSL-024	7,900	
	FTSL-025	46,000	
	FTSL-027	3,000	
	FTSL-042	2,800	
	FTSL-047	25,900	
	FTSL-051	15,500	
	FTSL-090	62,800	550,000

FY03	FTSL-008	49,800	
	FTSL-009	20,000	
	FTSL-010	10,000	
	FTSL-011	10,000	
	FTSL-012	10,000	
	FTSL-013	10,000	
	FTSL-014	20,000	
	FTSL-015	10,000	
	FTSL-016	19,200	
	FTSL-023	36,000	
	FTSL-025	36,000	
	FTSL-042	31,200	
	FTSL-045	4,000	
	FTSL-090	4,000	270,200

FY04	FTSL-008	16,000	
	FTSL-009	101,400	
	FTSL-012	6,000	
	FTSL-023	2,000	
	FTSL-025	21,000	
	FTSL-047	17,400	163,800

Prior Year Funding: **\$22,018,342**

CURRENT YEAR FUNDING

FY05	FTSL-009	52,000	
	FTSL-023	51,000	
	FTSL-047	36,000	
			139,000

FUTURE YEAR FUNDING

TOTAL FUTURE REQUIREMENTS: \$1,799,000

TOTAL IRP PROGRAM COSTS: \$23,956,342

Status of Community Involvement

In January of 1994, the Fort Sill Environmental Partnership Committee was formed. This committee is co-chaired by the Fort Sill Commanding General and the Mayor of Lawton and is comprised of members from Lawton and the eight county region around Fort Sill. This committee has been regularly updated on the status of Fort Sill's Installation Restoration Program and has provided their input on Fort Sill's Installation Restoration Program.

Determining Interest in Establishing RAB

1. Efforts Taken to Determine Interest

Fort Sill has made numerous RAB evaluations over the last 4 years with the last evaluation in July 2004 prior to the IAP Workshop. These evaluations show lack of sufficient and sustained interest by the community and government entities in forming a RAB.

As stated in the Army RAB/TAPP guidance the criteria for determining sufficient interest are:

- a) There is a lack of outstanding cleanup issues or activities that do not warrant the establishment of a RAB. Last removal action was in April 2001 with no future remedial or removal action anticipated.
- b) No local, state, tribal or federal government entity has ever requested that a RAB be formed.
- c) Fort Sill has no properties that are being transferred to the public at this time or in the anticipated future.
- d) No resident(s) from the local community and/or region has ever signed a petition requesting that a RAB be formed.
- e) Fort Sill IRP is being conducted under the VCP of the ODEQ and EPA Region 6, Memorandum of Agreement (April 1999).
- f) EPA is not involved with Fort Sill's IRP. Fort Sill does not have any NPL sites or does not have a RCRA permit.

It is Fort Sill's conclusion that Fort Sill does not meet any of the criteria set forth in the Army guidance and this shows that there is not sufficient and sustained interest by the community or the government entities in forming a RAB.

2. Results of Efforts to Determine Interest in a RAB

No interested parties have come forward to date requesting RAB membership.

3. Conclusions Concerning Establishing a RAB

Based upon the lack of community interest expressed to date no actions have been taken to establish a RAB.

4. Follow-up Procedures

The Public Affairs Office will continue to monitor public interest for all of Fort Sill's Environmental Programs.

FORT SILL

MILITARY MUNITIONS RESPONSE PROGRAM

STATUS: No NPL sites, no RCRA part B permit.

AEDB-R SITES/SITES RC: 1/0

AEDB-R SITE TYPES:

1 Small Arms Range

CONTAMINANTS OF CONCERN: UXO

MEDIA OF CONCERN: Soil

COMPLETED REM/IRA/RA: None

TOTAL MMRP FUNDING

PRIOR YEAR:	\$506,000
CURRENT FY05:	\$28,000
FUTURE:	\$45,005,000

DURATION OF MMRP:

Year of MMRP Inception:	2003
Year of RIP/RC Completion:	2014
Year of MMRP Completion:	2047

MMRP Contamination Assessment

Fort Sill is located in Comanche County in southwestern Oklahoma. The southeastern border of the facility is adjacent to the City of Lawton, Oklahoma. Fort Sill occupies 93,828.73 acres. Fort Sill was settled as a cavalry post in 1869 to assist with Indian relations. The disappearance of the frontier in the early 1900's led to the transition from a cavalry outpost to an Installation with a focus on field artillery. In 1911, the School of Fire for Field Artillery was founded at Fort Sill. The Fort performed this type of function throughout its history. In 1915, the first air unit in the US military service, the First Aero Squadron, was stationed at Fort Sill. Additional field schools transferred to Fort Sill such as the US Army Infantry School (then known as the School of Musketry) in 1913, the School for Aerial Observers (with the establishment of Henry Post Airfield) in 1918, the Army Aviation School in 1945 through 1954, and the Artillery and Guided Missile Center and the Artillery and Guided Missile School in 1955. Camp Doniphan was established in 1917 as a National Army cantonment. The Fort was used in these capacities through present day as the home for the Field Artillery Center and School for the US Army and US Marine Corps for training and operational missions.

The Cantonment Area (FSILL-001-R-01) at Fort Sill was identified as an MMRP Site in April 2003 based on the US Army Range/Site CTT Inventory. In addition, there have been a number of subsites within the Cantonment Area that have been identified for MEC and MC investigation. The Cantonment Area (FSILL-001-R-01) at Fort Sill was identified as an MMRP Site in April 2003 based on the US Army Range/Site CTT Inventory. In addition, there are nine (9) sub-sites within the Cantonment Area that have been identified for MEC and MC investigation. The Rocket-Rifle-Grenade Range complex area in the southwest corner of the Cantonment Area comprised of the following smaller ranges: Field Artillery Replacement Training Center (FARTC) Rifle grenade range, Inert Rifle grenade range, McKenzie Hill Pistol and Rifle Ranges, and two FARTC Rocket Ranges. The Camp Doniphan sub-site (with the exception of the Post Ammunition Storage Area) is located on the western side of the Cantonment Area, the Rifle Range circa 1906 in the north-central portion of the Cantonment Area, the 8,000 Yard Artillery Range and the 14,500 Yard Artillery Range safety fans in the northern Cantonment Area. Additional information has been collected during the SI records collection visit, February 2004. A Historical Records Review was completed for Fort Sill that included information for the identified MMRP Site. Additional information was collected during the SI records collection visit, February 2004. A Historical Records Review was completed for Fort Sill that included information for the identified MMRP Site.

Cleanup Exit Strategy:

The SI is underway and the RI/FS is scheduled for FY08. A removal and institutional controls are anticipated with additional 5 year reviews.

Previous Studies:

2004

- Final Historical Records Review for Other Than Operational Ranges at Cantonment Area, Fort Sill, Oklahoma, USACE, Omaha District, Aug-04.

2005

- Draft Site Inspection Report Military Munitions Response Program Site Inspection Munitions Response Sites, Fort Sill, Oklahoma, USACE, Omaha District, Jun-05.

FORT SILL

**MILITARY MUNITIONS RESPONSE
PROGRAM**

SITE DESCRIPTIONS

FSILL-001-R-01

CANTONMENT AREA

SITE DESCRIPTION

The Cantonment Area is located on the southern boundary of the Installation between the west and east range areas. The Cantonment Area is 8,132.40 acres in size and was part of the original Installation. Various places in the Cantonment Area have been used for weapons training or demolition since construction of the Installation in 1869 until around 1960. Musket training was conducted in the area where the museum and parade grounds are now located. Aerial photographs show piles of ammunition previously located by Key Gate and 75 mm munitions have been located near Rucker Park. UXO-DMM-MC has been discovered during building and utilities construction and other investigations throughout the Cantonment Area. Much of the existing Cantonment Area was historically part of an active range.

CLEANUP STRATEGY

The SI is underway and anticipated to be completed in FY06. Remedial Investigation phase is planned in FY08. RA including soil removal and LTM is programmed.

STATUS

RAC Score: 1

CONTAMINANTS: UXO

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	200210	200305
SI	200309	200510
RI/FS	200710	200909
RD	201210	201304
RA(C)	201305	201409
LTM	201710	204709

RC: 201409

PAST MILESTONES

MMRP Start Date 2003

PROJECTED MILESTONES

Phase Completion Milestones:
SI Completed FY 2006
RI Completed FY 2009

ROD/DD Approval Dates: 2009

Construction Completion: 2014

Completion Date of all RA(C) Activities: 2014

Completion Date of IRP (including LTM phase): 2047

Fort Sill MMRP Schedule

(Based on current funding constraints)

CURRENT PHASE

FUTURE PHASE

AEDB-R#	PHASE	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
FSILL-001-R-01	RI/FS										
	RD										
	RA(C)										
	LTM										204709

PRIOR YEAR FUNDING

FY03	SI at FSILL-001-R-01	\$413K
FY04	SI at FSILL-001-R-01	\$93K
Total Prior Year		\$506K

CURRENT YEAR FUNDING

FY05	SI at FSILL-001-R-01	\$28K
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FUTURE YEAR FUNDING

TOTAL FUTURE REQUIREMENTS: \$ 45,005,000

TOTAL MMRP PROGRAM COSTS: \$45,539,000